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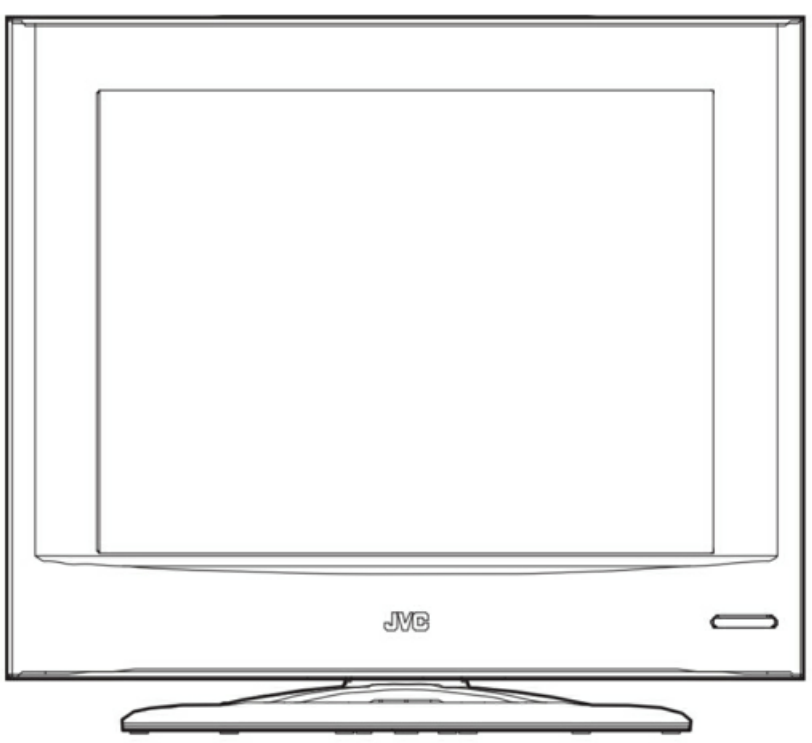
JVC LT-20J50SJ SERVICE MANUAL



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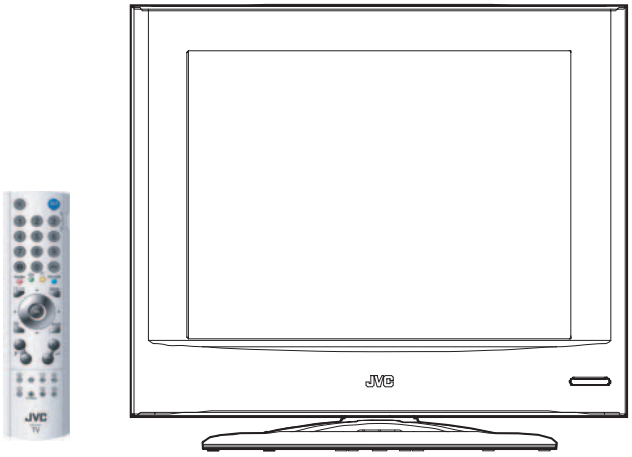
JVC

SERVICE MANUAL

LCD PANEL TELEVISION

LT-20J50SJ,
LT-20J50SU

InteriArt



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No.YA413
2006/5

SPECIFICATION

Items		Contents
Dimensions (W × H × D)		53.0cm × 47.7cm × 21.3cm [Included stand] 53.0cm × 44.0cm × 12.5cm [TV only]
Mass		8.2kg [Included stand] 7.2kg [TV only]
Power Input	ADAPTOR TV	AC100 - 240V 50Hz DC12V
Power Consumption		60W (Standby:1.2W)
TV RF System		CCIR (B/G, DK, I, L)
Colour System		PAL / SECAM / NTSC 3.58/4.43 [EXT only]
Stereo System		A2 (B/G) / NICAM (B/G, I, L)
Receiving Frequency	VHF UHF CATV	47 MHz - 470 MHz 470 MHz - 862 MHz S1 - S20 / S21 - S41
Intermediate Frequency	VIF SIF	38.9 MHz (B/G, I, L) 33.4 MHz (5.5MHz : B/G) 32.9 MHz (6.0MHz : I) 32.4 MHz (6.5MHz : L)
Colour Sub Carrier Frequency	PAL SECAM NTSC	4.43 MHz 4.40625 MHz / 4.25MHz 3.58 MHz / 4.43 MHz
Teletext System		FLOF (Fastext level 2.5), WST(World Standard system) TOP (German system)
LCD panel		20V-inch (4 : 3)
Screen Size		Diagonal : 50.9cm (H: 40.8cm × V: 30.6cm)
Display Pixels		Horizontal : 800 dots × Vertical : 600 dots (SVGA)
Audio Power Output		3W + 3W(10% THD)
Speaker		3cm × 10cm × 2
Aerial terminal (VHF/UHF)		F-type connector, 75Ω unbalanced, coaxial
EXT-1 (Input / Output)		21-pin Euro connector (SCART socket) × 1
EXT-2 (Input)	S-Video Video Audio	Mini-DIN 4 pin × 1 Y: 1V (p-p), Positive (Negative sync provided), 75 Ω C: 0.286V (p-p) (Burst signal), 75 Ω 1V (p-p), Positive (Negative sync provided), 75 Ω, RCA pin jack × 1 500mV (rms), High impedance, RCA pin jack × 2
PC (RGB) Input		D-sub 15pin × 1 R/G/B : 0.7V (p-p), 75Ω HD / VD : 1V (p-p) to 5V (p-p), high impedance < Available signal > Horizontal : 30kHz - 69kHz Vertical : 50Hz - 70Hz [Resolution : 640 pixels × 480 pixels(VGA), 800 pixels × 600 pixels(SVGA), 1024 pixels × 768 pixels (XGA)]
PC AUDIO input		3.5mm stereo mini jack × 1
Headphone		3.5mm stereo mini jack × 1
Remote Control Unit		RM-C1861 (AA/R6 dry cell battery × 2)

Design & specifications are subject to change without notice.

SECTION 1
PRECAUTION

1.1 SAFETY PRECAUTIONS [EXCEPT FOR UK]

(1) The design of this product contains special hardware, many circuits and components specially for safety purposes. For continued protection, no changes should be made to the original design unless authorized in writing by the manufacturer. Replacement parts must be identical to those used in the original circuits. Service should be performed by qualified personnel only.

(2) Alterations of the design or circuitry of the products should not be made. Any design alterations or additions will void the manufacturer's warranty and will further relieve the manufacturer of responsibility for personal injury or property damage resulting therefrom.

(3) Many electrical and mechanical parts in the products have special safety-related characteristics. These characteristics are often not evident from visual inspection nor can the protection afforded by them necessarily be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in the parts list of Service manual. **Electrical components having such features are identified by shading on the schematics and by (⚠) on the parts list in Service manual**. The use of a substitute replacement which does not have the same safety characteristics as the recommended replacement part shown in the parts list of Service manual may cause shock, fire, or other hazards.

(4) **Don't short between the LIVE side ground and ISOLATED (NEUTRAL) side ground or EARTH side ground when repairing.**
Some model's power circuit is partly different in the GND. The difference of the GND is shown by the LIVE : (⊥) side GND, the ISOLATED (NEUTRAL) : (⏚) side GND and EARTH : (⏚) side GND.
Don't short between the LIVE side GND and ISOLATED (NEUTRAL) side GND or EARTH side GND and never measure the LIVE side GND and ISOLATED (NEUTRAL) side GND or EARTH side GND at the same time with a measuring apparatus (oscilloscope etc.). If above note will not be kept, a fuse or any parts will be broken.

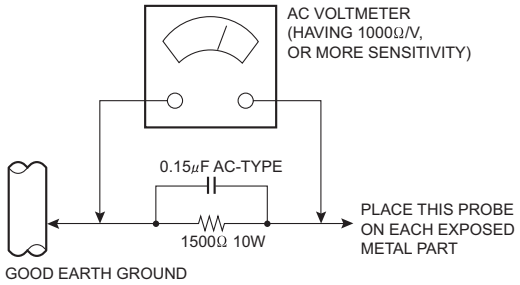
(5) When service is required, observe the original lead dress. Extra precaution should be given to assure correct lead dress in the high voltage circuit area. Where a short circuit has occurred, those components that indicate evidence of overheating should be replaced. Always use the manufacturer's replacement components.

(6) **Isolation Check (Safety for Electrical Shock Hazard)**
After re-assembling the product, always perform an isolation check on the exposed metal parts of the cabinet (antenna terminals, video/audio input and output terminals, Control knobs, metal cabinet, screw heads, earphone jack, control shafts, etc.) to be sure the product is safe to operate without danger of electrical shock.

a) **Dielectric Strength Test**
The isolation between the AC primary circuit and all metal parts exposed to the user, particularly any exposed metal part having a return path to the chassis should withstand a voltage of 3000V AC (r.m.s.) for a period of one second. (. . . Withstand a voltage of 1100V AC (r.m.s.) to an appliance rated up to 120V, and 3000V AC (r.m.s.) to an appliance rated 200V or more, for a period of one second.)
This method of test requires a test equipment not generally found in the service trade.

b) **Leakage Current Check**
Plug the AC line cord directly into the AC outlet (do not use a line isolation transformer during this check.). Using a "Leakage Current Tester", measure the leakage current from each exposed metal part of the cabinet, particularly any exposed metal part having a return path to the chassis, to a known good earth ground (water pipe, etc.). Any leakage current must not exceed 0.5mA AC (r.m.s.).
However, in tropical area, this must not exceed 0.2mA AC (r.m.s.).

Alternate Check Method
Plug the AC line cord directly into the AC outlet (do not use a line isolation transformer during this check.). Use an AC voltmeter having 1000Ω per volt or more sensitivity in the following manner. Connect a 1500Ω 10W resistor paralleled by a 0.15μF AC-type capacitor between an exposed metal part and a known good earth ground (water pipe, etc.). Measure the AC voltage across the resistor with the AC voltmeter. Move the resistor connection to each exposed metal part, particularly any exposed metal part having a return path to the chassis, and measure the AC voltage across the resistor. Now, reverse the plug in the AC outlet and repeat each measurement. Any voltage measured must not exceed 0.75V AC (r.m.s.). This corresponds to 0.5mA AC (r.m.s.).
However, in tropical area, this must not exceed 0.3V AC (r.m.s.). This corresponds to 0.2mA AC (r.m.s.).



1.2 SAFETY PRECAUTIONS [FOR UK]

(1) The design of this product contains special hardware and many circuits and components specially for safety purposes. For continued protection, no changes should be made to the original design unless authorized in writing by the manufacturer. Replacement parts must be identical to those used in the original circuits. Service should be performed by qualified personnel only.

(2) Alterations of the design or circuitry of the product should not be made. Any design alterations or additions will void the manufacturer's warranty and will further relieve the manufacturer of responsibility for personal injury or property damage resulting therefrom.

(3) Many electrical and mechanical parts in the product have special safety-related characteristics. These characteristics are often not evident from visual inspection nor can the protection afforded by them necessary be obtained by using replacement components rated for higher voltage, wattage, etc. Replacement parts which have these special safety characteristics are identified in the Parts List of Service Manual. Electrical components having such features are identified by shading on the schematics and by (⚠) on the Parts List in the Service Manual. The use of a substitute replacement which does not have the same safety characteristics as the recommended replacement part shown in the Parts List of Service Manual may cause shock, fire, or other hazards.

(4) The leads in the products are routed and dressed with ties, clamps, tubing's, barriers and the like to be separated from live parts, high temperature parts, moving parts and / or sharp edges for the prevention of electric shock and fire hazard. When service is required, the original lead routing and dress should be observed, and it should be confirmed that they have been returned to normal, after re-assembling.

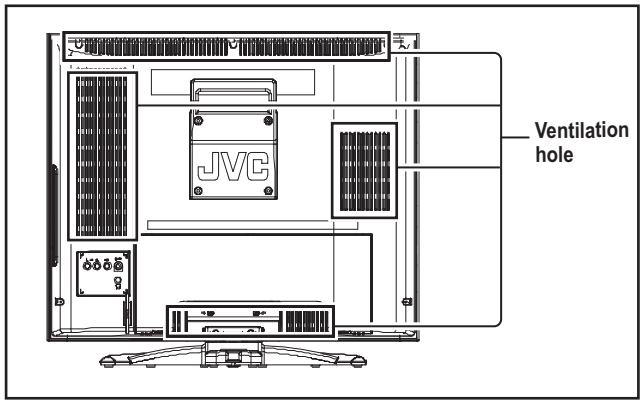
WARNING

(1) The equipment has been designed and manufactured to meet international safety standards.
(2) It is the legal responsibility of the repairer to ensure that these safety standards are maintained.
(3) Repairs must be made in accordance with the relevant safety standards.
(4) It is essential that safety critical components are replaced by approved parts.
(5) If mains voltage selector is provided, check setting for local voltage.

1.3 INSTALLATION

1.3.1 HEAT DISSIPATION

If the heat dissipation vent behind this unit is blocked, cooling efficiency may deteriorate and temperature inside the unit will rise. The temperature sensor that protects the unit will be activated when internal temperature exceeds the pre-determined level and power will be turned off automatically.Therefore, please make sure pay attention not to block the heat dissipation vent as well as the ventilation outlet behind the unit and ensure that there is room for ventilation around it.



1.3.2 INSTALLATION REQUIREMENTS

Ensure that the minimal distance is maintained, as specified below, between the unit with and the surrounding walls, as well as the floor etc.Install the unit on stable flooring or stands.Take precautionary measures to prevent the unit from tipping in order to protect against accidents and earthquakes.

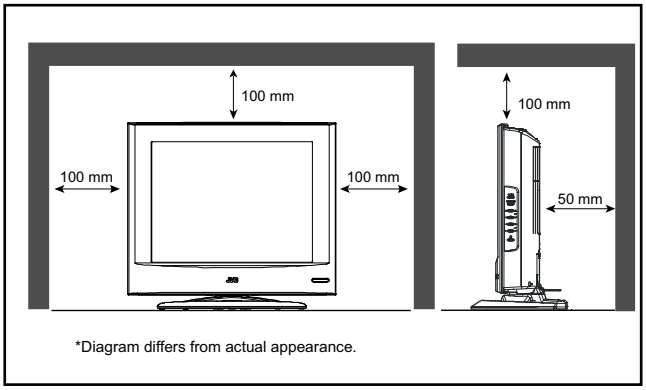


*Diagram differs from actual appearance.

1.3.3 NOTES ON HANDLING

(1) WHEN TAKING UNIT OUT OF A PACKING CASE
When taking the unit out of a packing case, do not grasp the upper part of the unit. If you take the unit out while grasping the upper part, the LCD PANEL may be damaged because of a pressure. Instead of grasping the upper part, put your hands on the lower backside or sides of the unit.

(2) AS FOR PRESSING OR TOUCHING A SPEAKER
Be careful not to press the opening of the speaker in the lower part of the unit and around them since the decorative sheet on the surface of the openings may be deformed.

1.4 HANDLING LCD PANEL

1.4.1 PRECAUTIONS FOR TRANSPORTATION

When transporting the unit, pressure exerted on the internal LCD panel due to improper handling (such as tossing and dropping) may cause damages even when the unit is carefully packed. To prevent accidents from occurring during transportation, pay careful attention before delivery, such as through explaining the handling instructions to transporters.

Ensure that the following requirements are met during transportation, as the LCD panel of this unit is made of glass and therefore fragile:

(1) USE A SPECIAL PACKING CASE FOR THE LCD PANEL
When transporting the LCD panel of the unit, use a special packing case (packing materials). A special packing case is used when a LCD panel is supplied as a service spare part.

(2) ATTACH PROTECTION SHEET TO THE FRONT
Since the front (display part) of the panel is vulnerable, attach the protection sheet to the front of the LCD panel before transportation. Protection sheet is used when a LCD panel is supplied as a service spare part.

(3) AVOID VIBRATIONS AND IMPACTS
The unit may be broken if it is toppled sideways even when properly packed. Continuous vibration may shift the gap of the panel, and the unit may not be able to display images properly. Ensure that the unit is carried by at least 2 persons and pay careful attention not to exert any vibration or impact on it.

(4) DO NOT PLACE EQUIPMENT HORIZONTALLY
Ensure that it is placed upright and not horizontally during transportation and storage as the LCD panel is very vulnerable to lateral impacts and may break. During transportation, ensure that the unit is loaded along the traveling direction of the vehicle, and avoid stacking them on one another. For storage, ensure that they are stacked in 2 layers or less even when placed upright.

1.4.2 OPTICAL FILTER (ON THE FRONT OF THE LCD PANEL)

(1) Avoid placing the unit under direct sunlight over a prolonged period of time. This may cause the optical filter to deteriorate in quality and COLOUR.

(2) Clean the filter surface by wiping it softly and lightly with a soft and lightly fuzz cloth (such as outing flannel).

(3) Do not use solvents such as benzene or thinner to wipe the filter surface. This may cause the filter to deteriorate in quality or the coating on the surface to come off. When cleaning the filter, usually use the neutral detergent diluted with water. When cleaning the dirty filter, use water-diluted ethanol.

(4) Since the filter surface is fragile, do not scratch or hit it with hard materials. Be careful enough not to touch the front surface, especially when taking the unit out of the packing case or during transportation.

1.4.3 PRECAUTIONS FOR REPLACEMENT OF EXTERIOR PARTS

Take note of the following when replacing exterior parts (REAR COVER, FRONT PANEL, etc.):

(1) Do not exert pressure on the front of the LCD panel (filter surface). It may cause irregular COLOUR.

(2) Pay careful attention not to scratch or stain the front of the LCD panel (filter surface) with hands.

(3) When replacing exterior parts, the front (LCD panel) should be placed facing downward. Place a mat, etc. underneath to avoid causing scratches to the front (filter surface).

SECTION 2
SPECIFIC SERVICE INSTRUCTIONS

2.1 FEATURES

ZOOM

This function can change the screen size according to the picture aspect ratio.

OFF TIMER

This function can set the TV to automatically turn off after a set time.

COLOUR SYSTEM

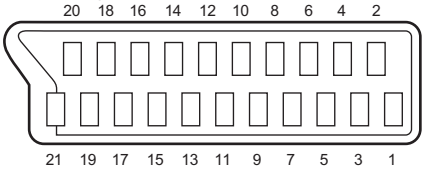
If the picture is not clear or no colour appears, change the current colour system to another colour system.

2.2 21-PIN EURO CONNECTOR (SCART) : EXT-1

Pin No.	Signal designation	Matching value	EXT-1
1	AUDIO R output	500mV(rms) (Nominal),, Low impedance	Used (TV OUT)
2	AUDIO R input	500mV(rms) (Nominal),, High impedance	Used (R1)
3	AUDIO L output	500mV(rms) (Nominal),, Low impedance	Used (TV OUT)
4	AUDIO GND		Used
5	GND (B)		Used
6	AUDIO L input	500mV(rms) (Nominal),, High impedance	Used (L1)
7	B input	$700mV_{(B-W)}$, 75Ω	Used
8	FUNCTION SW (SLOW SW)	Low : 0V-3V High : 8V-12V, High impedance	Used
9	GND (G)		Used
10	SCL / T-V LINK		Not used
11	G input	$700mV_{(B-W)}$, 75Ω	Used
12	SDA		Not used
13	GND (R)		Used
14	GND (YS)		Used
15	R / C input	R : $700mV_{(B-W)}$, 75Ω C : $300mV_{(P-P)}$, 75Ω	Used (R/C)
16	Ys input (FAST SW)	Low : 0V-0.4V, High : 1V-3V, 75Ω	Used
17	GND (VIDEO output)		Used
18	GND (VIDEO input)		Used
19	VIDEO output	$1V_{(P-P)}$ (Negative sync), 75Ω	Used (TV OUT)
20	VIDEO / Y input	$1V_{(P-P)}$ (Negative sync), 75Ω	Used
21	COMMON GND		Used

(P-P= Peak to Peak, B-W= Blanking to white peak)

[Pin assignment]



2.3 TECHNICAL INFORMATION

2.3.1 LCD PANEL

This unit uses the flat type panel LCD (Liquid Crystal Display) panel that occupies as little space as possible, instead of the conventional CRT (Cathode Ray Tube), as a display unit.
Since the unit has the two polarizing filter that are at right angles to each other, the unit adopts "normally black" mode, where light does not pass through the polarizing filter and the screen is black when no voltage is applied to the liquid crystals.

2.3.1.1 SPECIFICATIONS

The following table shows the specifications of this unit.

Item	Specifications	Remarks
Displayed colour	16777216 colours	256 colours for R, G, and B
Brightness	450cd/m^2	
Contrast ratio	500 : 1	
Response time	16ms	
View angle	Horizontally: 160°, Vertically: 120°	

2.3.1.2 PIXEL FAULT

There are three pixel faults - bright fault , dark fault and flicker fault - that are respectively defined as follows.

■ **BRIGHT FAULT**

In this pixel fault, a cell that should not light originally is lighting on and off.
For checking this pixel fault, input ALL BLACK SCREEN and find out the cell that is lighting on and off.

■ **DARK FAULT**

In this pixel fault, a cell that should light originally is not lighting or lighting with the brightness twice as brighter as originally lighting.
For checking this pixel fault, input 100% of each R/G/B colour and find out the cell that is not lighting.

■ **FLICKER FAULT**

In the pixel fault, a cell that should light originally or not light originally is flashing on and off.
For checking this pixel fault, input ALL BLACK SCREEN signal or 100% of each RGB colour and find out the cell that is flashing on and off.

SECTION 3
DISASSEMBLY

3.1 DISASSEMBLY PROCEDURE

NOTE:

- Make sure that the power cord is disconnected from the outlet.
- Pay special attention not to break or damage the parts.
- When removing each board, remove the connectors as required.
- Taking notes of the connecting points (connector numbers) makes service procedure manageable.
- Make sure that there is no bent or stain on the connectors before inserting, and firmly insert the connectors.

3.1.1 REMOVING THE HINGE COVER

(1) Remove the 2 screws **[A]**.
(2) Remove the HINGE COVER.

3.1.2 REMOVING THE FOOT TOP COVER

- Remove the HINGE COVER.
  (1) Remove the 2 screws **[B]**.
  (2) Pull out the FOOT TOP COVER.

3.1.3 REMOVING THE FOOT ASSEMBLY

(1) Remove the 4 screws **[C]**.
(2) Remove the FOOT ASSEMBLY.

3.1.4 REMOVING THE HANDLE

- Remove the HINGE COVER.
- Remove the FOOT TOP COVER.
  (1) Remove the 4 screws **[D]**.
  (2) Remove the THE HANDLE.

3.1.5 REMOVIE BACK COVER

- Remove the FOOT ASSEMBLY.
  (1) Remove the 7 screws **[E]**.
  (2) Remove the BACK COVER toward you.

NOTE:

If necessary, remove the HANDLE, SIDE AV DOOR and BACK DOOR.

3.1.6 REMOVING THE SIDE CONTROL PWB

- Remove the FOOT ASSEMBLY.
- Remove the BACK COVER.
  (1) Remove the 2 screws **[F]**.
  (2) Remove the FUNCTION BUTTON with SIDE CONTROL PWB.
  (3) Remove the 4 claws which is fixing the SIDE CONTROL PWB.
  (4) Remove the SIDE CONTROL PWB.

3.1.7 REMOVING THE AV JACK PWB

- Remove the FOOT ASSEMBLY.
- Remove the BACK COVER.
  (1) Remove the 4 screws **[G]**.
  (2) Remove the AV JACK PWB.

3.1.8 REMOVING THE METAL HANG

- Remove the FOOT ASSEMBLY.
- Remove the HANDLE.
- Remove the BACK COVER.
  (1) Remove the 1 screw **[H]**.
  (2) Remove the METAL HANG.
  (3) Remove the opposite METAL HANG same steps.

3.1.9 REMOVING THE BRACKET SOCKET COVER

- Remove the FOOT ASSEMBLY.
- Remove the BACK COVER.
  (1) Remove the 2 screws **[J]**.
  (2) Remove the BRACKET SOCKET COVER.

3.1.10 REMOVING THE MAIN PWB

- Remove the FOOT ASSEMBLY.
- Remove the BACK COVER.
- Remove the BRACKET SOCKET COVER.
  (1) Remove the 5 screws **[K]**.
  (2) Remove the MAIN PWB.

3.1.11 REMOVING THE LED PWB

- Remove the FOOT ASSEMBLY.
- Remove the BACK COVER.
  (1) Remove the 2 screws **[L]**.
  (2) Remove the LED PWB.

3.1.12 REMOVING THE SPEAKER

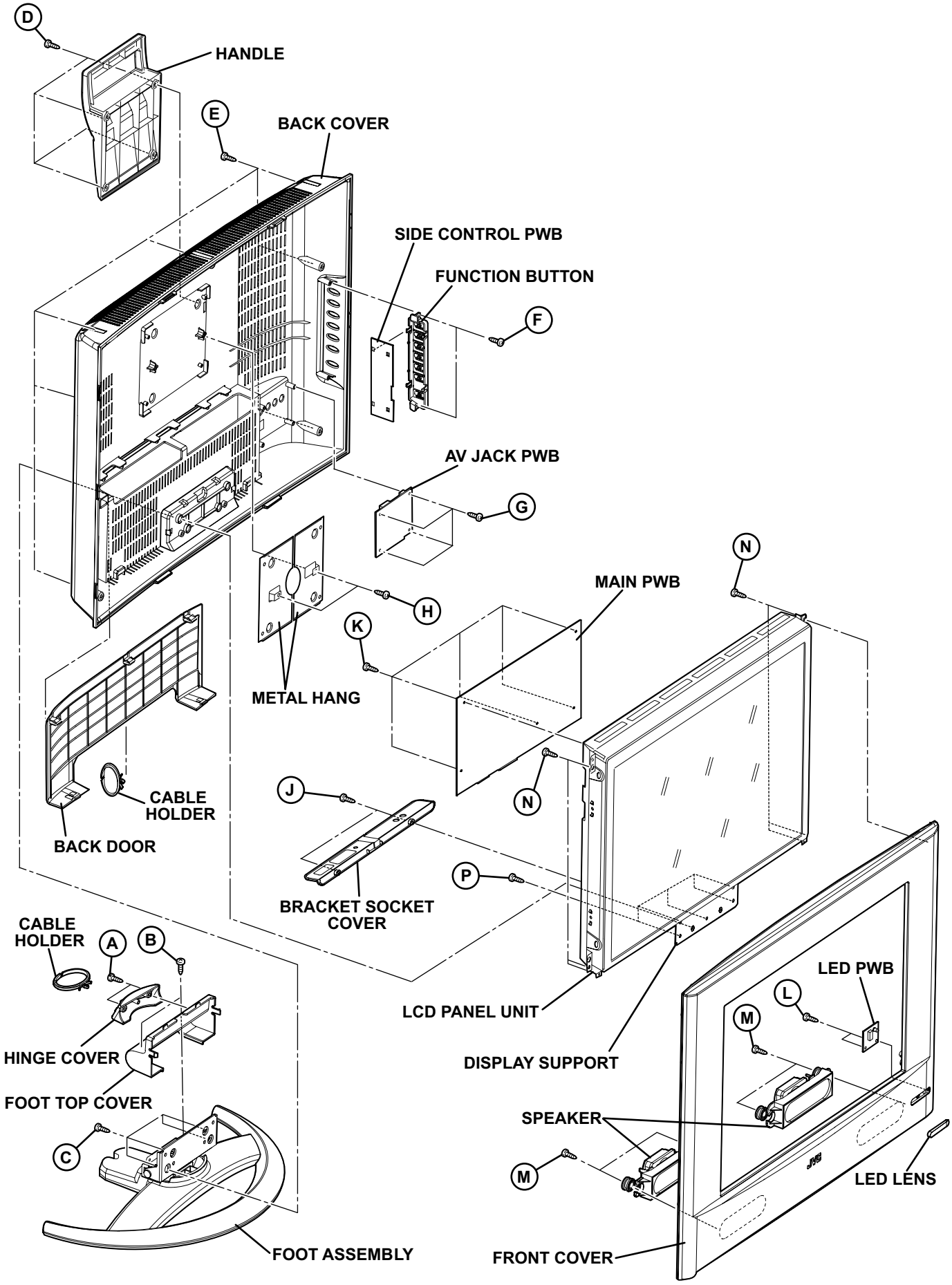
- Remove the FOOT ASSEMBLY.
- Remove the BACK COVER.
  (1) Remove the speaker wire from speaker terminal.
  (2) Remove the 2 screws **[M]**.
  (3) Remove the SPEAKER.
  (4) Remove the opposite speaker same steps.

3.1.13 REMOVING THE LCD PANEL UNIT

- Remove the FOOT ASSEMBLY.
- Remove the BACK COVER.
- Remove the MAIN PWB.
- Remove the REGULATOR PWB.
- Remove the AV JACK PWB.
  (1) Remove the 6 screws **[N]**.
  (2) Remove the 5 screws **[P]** fixing the DISPLAY SUPPORT and LCD PANEL UNIT.
  (3) Sightly raise the both sides of the LCD PANEL by hand from the FRONT COVER.

NOTE:

- Pay special attention not to break or damage on the front of the LCD PANEL.
- The LCD PANEL UNIT is fixed to the FRONT COVER (at the back side)by using double-side adhesive tapes. To remove the LCD PANEL UNIT, remove the adhesive tape on the FRONT COVER slowly.


D
HANDLE
E
BACK COVER
SIDE CONTROL PWB
FUNCTION BUTTON
F
AV JACK PWB
G
H
N
MAIN PWB
K
METAL HANG
CABLE HOLDER
BACK DOOR
J
N
BRACKET SOCKET COVER
P
CABLE HOLDER
A
B
HINGE COVER
FOOT TOP COVER
C
FOOT ASSEMBLY
LCD PANEL UNIT
DISPLAY SUPPORT
LED PWB
L
M
SPEAKER
M
LED LENS
FRONT COVER

3.2 MEMORY IC REPLACEMENT

- This model uses the memory IC.
- This memory IC stores data for proper operation of the video and drive circuits.
- When replacing, be sure to use an IC containing this (initial value) data.

3.2.1 SETTINGS OF FACTORY SHIPMENT

3.2.1.1 BUTTON OPERATION

Setting item	Setting position
POWER	Off
TV/AV	TV

3.2.1.2 REMOTE CONTROL DIRECT OPERATION

Setting item	Setting position
ZOOM	Auto

3.2.1.3 REMOTE CONTROL MENU OPERATION

(1) PICTURE

Setting item	Setting position
Mode	Bright
Contrast	75 Step
Bright-1	30 Step
Sharpness	25 Step
Colour	32 Step
Bright-2	Max.
Colour Temperature	Cool
Hue	25 Step

(2) SOUND

Setting item	Setting position
Volume	10 Step
Bass	0 Step
Treble	0 Step
Balance	0 Step
Hyper Sound	Off

(3) FEATURE

Setting item	Setting position
Sleep Timer	Off
Child Lock	Off
Language	English
Blue Back	Off

(4) INSTALLATION

Setting item	Setting position
Colour System	AUTO
VCR	Off

3.3 REPLACEMENT OF CHIP COMPONENT

3.3.1 CAUTIONS

(1) Avoid heating for more than 3 seconds.
(2) Do not rub the electrodes and the resist parts of the pattern.
(3) When removing a chip part, melt the solder adequately.
(4) Do not reuse a chip part after removing it.

3.3.2 SOLDERING IRON

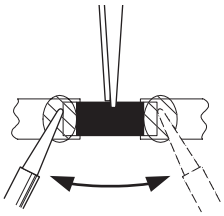
(1) Use a high insulation soldering iron with a thin pointed end of it.
(2) A 30w soldering iron is recommended for easily removing parts.

3.3.3 REPLACEMENT STEPS

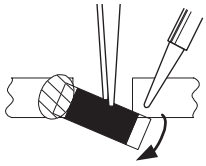
1. How to remove Chip parts

[Resistors, capacitors, etc.]

(1) As shown in the figure, push the part with tweezers and alternately melt the solder at each end.



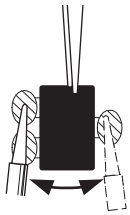
(2) Shift with the tweezers and remove the chip part.



[Transistors, diodes, variable resistors, etc.]

(1) Apply extra solder to each lead.

(2) As shown in the figure, push the part with tweezers and alternately melt the solder at each lead. Shift and remove the chip part.



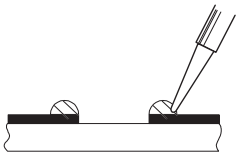
NOTE :

After removing the part, remove remaining solder from the pattern.

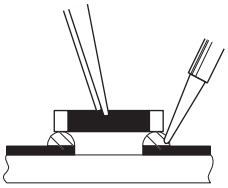
2. How to install Chip parts

[Resistors, capacitors, etc.]

(1) Apply solder to the pattern as indicated in the figure.

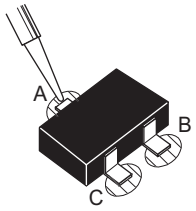


(2) Grasp the chip part with tweezers and place it on the solder. Then heat and melt the solder at both ends of the chip part.

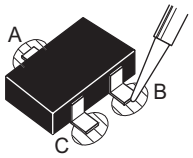


[Transistors, diodes, variable resistors, etc.]

(1) Apply solder to the pattern as indicated in the figure.
(2) Grasp the chip part with tweezers and place it on the solder.
(3) First solder lead **A** as indicated in the figure.



(4) Then solder leads **B** and **C**.



SECTION 4
ADJUSTMENT

4.1 ADJUSTMENT PREPARATION

(1) **The setting (adjustment) using the REMOTE CONTROL UNIT is made on the basis of the initial setting values. The setting values which adjust the screen to the optimum condition can be different from the initial setting values.**
(2) Make sure that connection is correctly made to AC power source.
(3) Turn on the power of the monitor and measuring instrument for warming up for at least 30 minutes before starting adjustment.
(4) If the input signal is not specified, use the most appropriate signal for adjustment.
(5) Never touch parts (such as variable resistors, transformers and condensers) or setting items/values not shown in the adjustment items of this service adjustment.

4.2 BASIC OPERATION OF UOCIII SERVICE MODE

4.2.1 HOW TO ENTER THE UOCIII SERVICE MODE

(1) Press **[MENU]** key.
(2) Press the **[4]**, **[7]**, **[2]** and **[5]** key, and UOCIII SERVICE MODE screen will be displayed.

UOCIII SERVICE MODE SCREEN

```
          GTV  3.2.1

000   EurAsia TVSub          00.95


00000000   00111100
01000000   01100100
11000101   01100100
00000000   01100100
```

4.2.2 HOW TO EXIT THE UOCIII SERVICE MODE

Press **[MENU]** key to exit the UOCIII SERVICE MODE.

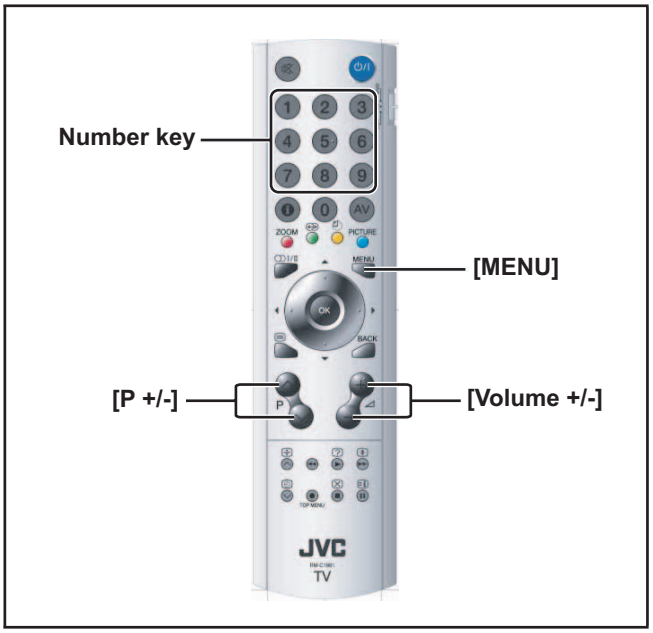
4.2.3 CHANGE AND MEMORY OF SETTING VALUE

■ **SELECTION OF SETTING MENU & ITEM**
- **[P +/-]** key.

■ **CHANGE OF SETTING VALUE(DATA)**
- **[Volume +/-]** key.

■ **MEMORY OF SETTING VALUE(DATA)**
The setting value will be stored automatically when release the REMOTE CONTROL UNIT keys.

4.2.4 UOCIII SERVICE MODE SELECT KEY LOCATION



4.2.5 UOCIII SERVICE MODE SETTING ITEMS

Item No.	Setting items	Function	Variable range	Setting value
000	EurAsia TVSub		---	00.95
001	Init TV	Sets the UOC default values and turns the tv to Stdby	0-1	0
002	ISP Mode	Sets the TV into ISP state.	0-1	0
003	DCXO	DCXO crystal alignment	0-127	77
004	DCXO Auto	Automatic DCXO frequency alignment. When it is set to 1; UOC automaticaly calculates DCXO values and writes it to item number 3.	0-1	0
005	Track. Mode		0-1	0
006	Hor. Shift		0-63	32
007	HBL		0-1	0
008	WBF		0-15	4
009	WBR		0-15	8
010	WSS	WSS (Wide Screen Siganling) enable	0-1	1
011	Gld-SCART		0-1	1
012	Col Fe	Color Saturation adjustment for RF input	0-50	32
013	Col AV1	Color Saturation adjustment for Scart CVBS input	0-50	32
014	Col AV1S		0-50	32
015	Col AV2	Color Saturation adjustment for AV CVBS input	0-50	32
016	Col AV2S	Color Saturation adjustment for for SVHS S-video input	0-50	32
017	BLOR		0-63	32
018	BLOG		0-63	32
019	RGB		0-15	14
020	YSECAM	"Y delay" setting. (SECAM)	0-15	8
021	YNTSC	"Y delay" setting. (NTSC)	0-15	8
022	YPAL	"Y delay" setting. (PAL)	0-15	8
023	YAV1	"Y delay" setting. (SCART)	0-15	4
024	YAV2	"Y delay" setting. (FAV)	0-15	4
025	YSVHS1	"Y delay" setting.	0-15	4
026	YSVHS2	"Y delay" setting. (S-Video)	0-15	4
027	ACL		0-1	0
028	MUS		0-1	0
029	PWL		0-15	8
030	CB		0-1	0
031	BPS		0-1	0
032	FCO		0-1	0
033	PeakFreqPAL443		0-3	1
034	PeakFreqPALM		0-3	1
035	PeakFreqPALN		0-3	1
036	PeakFreqNTSC443		0-3	1
037	PeakFreqNTSCM		0-3	1
038	PeakFreqSECAM		0-3	1
039	PeakFreqAV		0-3	1
040	Blackstretch		0-1	1
041	Bluestretch		0-1	0
042	Whitestretch		0-3	0
043	Transfer Ratio		0-1	1
044	PeakRatioOvShot		0-3	1
045	Tint NTSC		0-50	31
046	OSO		0-1	0
047	FSL		0-1	0
048	HP2		0-1	0
049	SoftClipLevel		0-3	0
050	OP AUDIO CONFIG		0-2	2
051	OP BILING		0-1	1
052	OP HP		0-1	1
053	OP EQUAL		0-1	1
054	OP DOLBY		0-1	0
055	OP TRUSUR		0-1	0
056	OP DUB DBE		0-1	0
057	OP BBE		0-1	0
058	AVL-LEV	AVL Level setting	0-15	1
059	AVL-WGT	AVL Weight setting	0-1	0
060	AVL-MOD	AVL Response Time setting	0-5	2
061	AVLE	AVL enable/disable	0-1	1
062	LOUD-NA		0-7	5
063	LOUD-CH		0-1	1
064	BBE-CONT		0-15	7
065	BBE-PROC		0-15	7
066	OP CLIP		0-4	0
067	DEC-LEV	FM German Str. Prescale setting	0-31	23
068	MONO-LEV	FM Mono Prescale setting	0-31	23
069	NIC-LEV	Nicam Str. Prescale setting	0-31	17
070	ADC-AM-L	AM Mono Prescale setting	0-31	21
071	ADC-AV-L	Scart/Line in Prescale setting	0-31	18
072	BGSCAL DEC		0-31	0
073	BGSCAL MONO		0-31	0
074	BGSCAL NIC		0-31	0
075	BGSCAL SAP		0-31	0
076	MSCAL DEC		0-31	0
077	MSCAL MONO		0-31	0
078	MSCAL NIC		0-31	0
079	MSCAL SAP		0-31	0
080	LSCAL DEC		0-31	0
081	LSCAL MONO		0-31	0
082	LSCAL NIC		0-31	0
083	LSCAL SAP		0-31	0
084	E2D		0-1	0
085	FFI		0-1	0
086	CMUTE		0-1	1
087	PA-BA-VO		0-63	31
088	PA-TR-VO		0-63	15
089	PA-LM-VO		0-4	1
090	PA-ST-VO		0-5	5
091	PA-LO-VO		0-1	0
092	PA-B1-VO		0-63	21
093	PA-B2-VO		0-63	50
094	PA-B3-VO		0-63	55
095	PA-B4-VO		0-63	45
096	PA-B5-VO		0-63	34
097	PA-BA-MU		0-63	34
098	PA-TR-MU		0-63	39
099	PA-LM-MU		0-4	1
100	PA-ST-MU		0-5	5
101	PA-LO-MU		0-1	1
102	PA-B1-MU		0-63	52
103	PA-B2-MU		0-63	47
104	PA-B3-MU		0-63	29
105	PA-B4-MU		0-63	29
106	PA-B5-MU		0-63	45
107	PA-BA-TH		0-63	36

Item No.	Setting items	Function	Variable range	Setting value
108	PA-TR-TH		0-63	34
109	PA-LM-TH		0-4	1
110	PA-ST-TH		0-5	5
111	PA-LO-TH		0-1	0
112	PA-B1-TH		0-63	47
113	PA-B2-TH		0-63	45
114	PA-B3-TH		0-63	42
115	PA-B4-TH		0-63	45
116	PA-B5-TH		0-63	42
117	AGC Speed	AGC Speed setting	0-3	1
118	AGC Take over	AGC setting	0-63	27
119	OIF	IF Demodulator Offset	0-63	32
120	IF	IF Frequency	0-5	2
121	SVO		0-1	0
122	GD		0-1	1
123	BPB		0-1	0
124	BPB2		0-1	0
125	RGB-IN		0-1	1
126	DVD1-IN		0-1	0
127	AV2-IN		0-1	1
128	DVD2-IN		0-1	0
129	AV1S-IN		0-1	1
130	AV1D-IN		0-1	0
131	AV2S-IN		0-1	1
132	CBVS-OUT		0-1	1
133	INCL-AV		0-1	0
134	OTHER1		0-1	0
135	OTHER2		0-1	0
136	TXT-H-POS		0-31	11
137	OTHER:BG-DK		0-1	0
138	TIM-SLP		0-1	1
139	TIM-SW		0-1	1
140	TIM-OFF		0-1	1
141	TIM-SKP		0-1	1
142	TIM-RT		0-1	1
143	PWR-SAVING		0-1	1
144	PWR-PERF		0-3	3
145	PWR-REST		0-1	1
146	PWR-ONKEY		0-1	1
147	Factory Mode		0-1	0
148	CombFil	Combfilter enable/disable	0-1	1
149	ATS		0-1	1
150	EVG		0-1	0
151	DFL		0-1	0
152	XDT		0-1	0
153	AKB		0-1	1
154	OSVE		0-1	0
155	CL		0-15	10
156	LCD-BRT	UOC Brightness	0-63	36
157	LCD-CON	UOC Contrast	0-63	32
158	LCD-CON-FE	RF Frontend Contrast adjust.	0-63	30
159	LCD-CON-AV1	Scart CVBS Contrast adjust.	0-63	32
160	LCD-CON-AV1S		0-63	32
161	LCD-CON-AV2	AV CVBS Contrast adjust.	0-63	32
162	LCD-CON-AV2S	S-Video input Contrast adjust.	0-63	32
163	RBL		0-1	0
164	EGL		0-1	0
165	LPG		0-1	1
166	PGR	UOC Red Contrast	0-127	32
167	PGG-CVBS	UOC Green Contrast for CVBS input	0-127	32
168	PGG-RGB	UOC Green Contrast for RGB input	0-127	34
169	PGB	UOC Blue Contrast	0-127	32

4.3 BASIC OPERATION OF PW SERVICE MODE

4.3.1 HOW TO ENTER THE PW SERVICE MODE

(1) Press **[INFORMATION]** key and **[MUTING]** key simultaneously, and PW SERVICE MODE screen will be displayed.

4.3.2 HOW TO EXIT THE PW SERVICE MODE

Press **[MENU]** key to exit the PW SERVICE MODE.

4.3.3 CHANGE AND MEMORY OF SETTING VALUE

■ **SELECTION OF SETTING MENU & ITEM**

- **[FUNCTION ▲/▼]** and **[FUNCTION ◀ / ▶]** key.

■ **CHANGE OF SETTING VALUE(DATA)**

- **[FUNCTION ◀ / ▶]** key.

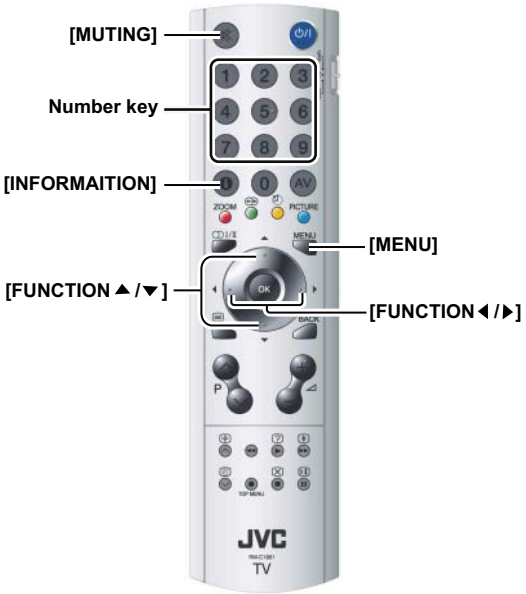
■ **MEMORY OF SETTING VALUE(DATA)**

<In case of Service Submenu 1 and Service Submenu 2>:
The setting value will be stored automatically when release the REMOTE CONTROL UNIT keys.

<In case of Factory Settings 1 and Factory Settings 2>:

(1) Press **[MENU]** key.
(2) Press the **[4]**, **[7]**, **[2]** and **[9]** key to store the setting value.
(3) After storing the setting value, the message "Factory Settings OK" will be displayed.

4.3.4 PW SERVICE MODE SELECT KEY LOCATION



4.3.5 PW SERVICE MODE SETTING ITEMS

Setting menu	Setting items	Setting value
Service Submenu 1	UOC Hposition	128
	ADC_Calibration	-
	UOC_Calibration	-
Service Submenu 2	Panel Type	AU_20_VGA_V4WB
	Init NVM	-
	AVL	On
	PC Mode	On
	Burn-In Mode	Off
Factory Settings 1	Initial APS	Off
	Language	English
	Country	-
	Model Name	-

Setting menu	Setting items	Setting value											
	Group	TV-CVBS			S-VIDEO			RGB			PC		
	Mode	Bright	Standard	Soft	Bright	Standard	Soft	Bright	Standard	Soft	Bright	Standard	Soft
Factory Settings 2	Contrast	38	33	28	43	38	33	38	33	28	30	33	28
	Bright-1	14	14	14	18	18	18	14	14	14	14	14	14
	Sharpness	40	35	30	40	35	30	40	35	30	-	-	-
	Colour	28	28	26	29	28	26	28	28	26	-	-	-

SECTION 5
TROUBLESHOOTING

This service manual does not describe TROUBLESHOOTING.

JVC
Victor Company of Japan, Limited
Flat Panel Display Category 12, 3-chome, Moriya-cho, Kanagawa-ku, Yokohama-city, Kanagawa-prefecture, 221-8528, Japan

(No.YA413)

Printed in Japan
VPT

sabled
t screen

JVC

InteriArt

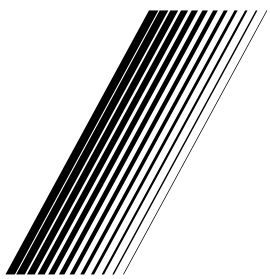
LT-20J50SU

JVC

LCD PANEL TV

LCD-TV-GERÄT
PANNEAU LCD TELEVISEUR
TV A SCHERMO LCD
TV CON PANTALLA LCD

0206TKH-VT-VT



OR COMPANY OF JAPAN, LIMITED

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a 11:05:48

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For your safety

This equipment has been designed and manufactured to meet international safety standards but, like any electrical equipment, care must be taken if you are to obtain the best results and safety is to be assured. So, please read the points below for your own safety. They are of a general nature, intended to help you with all your electronic consumer products and some points may not apply to the goods you have just purchased.

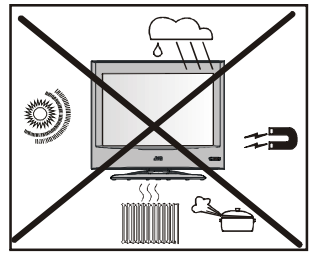
Some “DOs” and “DON’Ts” for you

Air Circulation…

Leave at least 10cm clearance around the television to allow adequate ventilation. This will prevent the TV from overheating and consequential possible damage to the TV. Dusty places should also be avoided.

Heat Damage…

Damage may occur if you leave the TV in direct sunlight or near a heater. Avoid places subject to extremely high temperatures or humidity, or locations where the temperature is likely to fall below 5ºC (41ºF).



Mains Supply…

The mains supply required for this equipment is **100-240 V AC, 50 Hz.** Never connect to a DC supply or any other power source. DO ensure that the TV is not standing on the mains lead. DO NOT cut off the mains plug from this equipment, this incorporates a special Radio Interference Filter, the removal of which will impair its performance.

Hot / Moderate Climate Conditions

This device is suitable for working in hot and moderate climate conditions.

IF IN DOUBT PLEASE CONSULT A COMPETENT ELECTRICIAN.

DO…

DO read the operating instructions before you attempt to use the equipment.

DO ensure that all electrical connections (including the mains plug, extension leads and inter-connections between pieces of equipment) are properly made and in accordance with the manufacturers' instructions.

Switch off and withdraw the mains plug before making or changing connections.

DO consult your dealer if you are ever in doubt about the installation, operation or safety of your equipment.

DO be careful with glass panels or doors on equipment.

DO NOT…

DON'T remove any fixed cover as this may expose dangerous voltages.

DON'T obstruct the ventilation openings of the equipment with items such as newspapers, table-cloths, curtains etc. Overheating will cause damage and shorten the life of the equipment.

DON'T allow electrical equipment to be exposed to dripping or splashing or objects filled with liquids, such as vases, to be placed on the equipment.

DON'T place hot objects or naked flame sources, such as lighted candles or nightlights on, or close to the equipment. High temperatures can melt plastic and lead to fires.

DON'T use makeshift stands and NEVER fix legs with wood screws. To ensure complete safety, always fit the manufacturer's approved stand or legs with the fixings provided according to the instructions.

DON'T listen to headphones at high volume, as such use can permanently damage your hearing.

DON'T leave equipment switched on when it is unattended, unless it is specifically stated that it is designed for unattended operation or has a standby mode. Switch the equipment off and make sure your family know how to do this. Special arrangements may need to be made for infirm or handicapped people.

DON'T continue to operate the equipment if you are in any doubt about it working normally, or it is damaged in any way – switch off, withdraw the mains plug and consult your dealer.

DON'T put the empty batteries into garbage instead of recycle bin to reduce harmfull effects to the environment.

ABOVE ALL – NEVER let anyone, especially children, push anything into holes, slots or any other openings in the case – this could result in a fatal electric shock.

NEVER guess or take chances with electrical equipment of any kind – it is better to be safe than sorry.

To fully disconnect the TV, switch off the mains socket and remove the Power plug.
Safety Precautions for Power adaptor

- Be careful! May become hot.
- For indoor and dry location use only.
- Risk of electric shock.
- Shock hazard, do not open.
- Keep all power adaptors away from any other heat source.
- Always use power adaptor(s) well-ventilated area.

*** Cold cathode fluoresant lamp in LCD PANEL contains a small amount of mercury, please follow local ordinates or regulations for disposal.*

"The LCD panel is very high technology product with about a million thin film transistors, giving you fine picture details. Occasionally, a few non-active pixels may appear on the screen as a fixed point of blue, green or red. Please note that this does not affect the performance of your product." Please note that certain light guns used with games consoles may not work on this product.

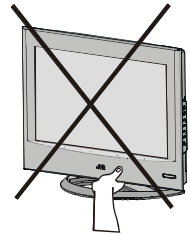
Warning:

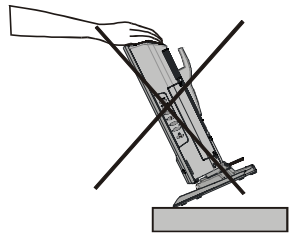
This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

WARNING

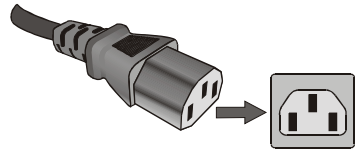
- *Fingers may be trapped under the TV causing injuries. Hold the TV at the bottom in the middle, and do not allow it to tilt up or down.*
- *The TV may fall causing injuries. Hold the bottom of the stand with your hand and tilt the TV up and down.*
- *Do not allow children to hang from the TV, place their elbows on the TV or lean against the TV. Doing so may cause the TV to fall over and lead to injuries.*





CAUTION:

- *To avoid electric shock or damage to the unit, first firmly insert the small end of the power cord into the AC Adapter unit it is no longer wobbly, and then plug the larger end of power cord into an AC outlet.*



Important Information

Please take note

EXCLUSION CLAUSE

JVC shall under no circumstances be liable for loss and/or damage to the product caused by:

- fire;
- earthquake;
- accidental damage;
- intentional misuse of the product;
- use of the product in improper conditions;
- loss and/or damage caused to the product whilst in the possession of a third party;
- any damage or loss caused as a result of the owner' s failure and/or neglect to follow the instructions set out in the owner's manual;
- any loss or damage caused directly as a result of misuse or malfunction of the product when used simultaneously with associated equipment;

Furthermore, under no circumstances shall JVC be liable for any consequential loss and/or damage including but not limited to the following, loss of profit, interruption of business, the loss of recorded data whether caused during normal operation or misuse of the product.

WARNING! NEVER LEAVE A STATIONARY IMAGE ON THE SCREEN

If stationary images generated by TELETEXT, CHANNEL IDENTIFICATION LOGOS, COMPUTER DISPLAYS, VIDEO GAMES, ON SCREEN MENUS, etc. are left on the TV screen for any length of time, they could become permanently ingrained.

If you use your television to display completely still images, or moving pictures which have a permanent still image superimposed e.g. broadcast network logos, it is always advisable to reduce BOTH the brightness and contrast settings.

Care and disposal

Cleaning the screen and cabinet...

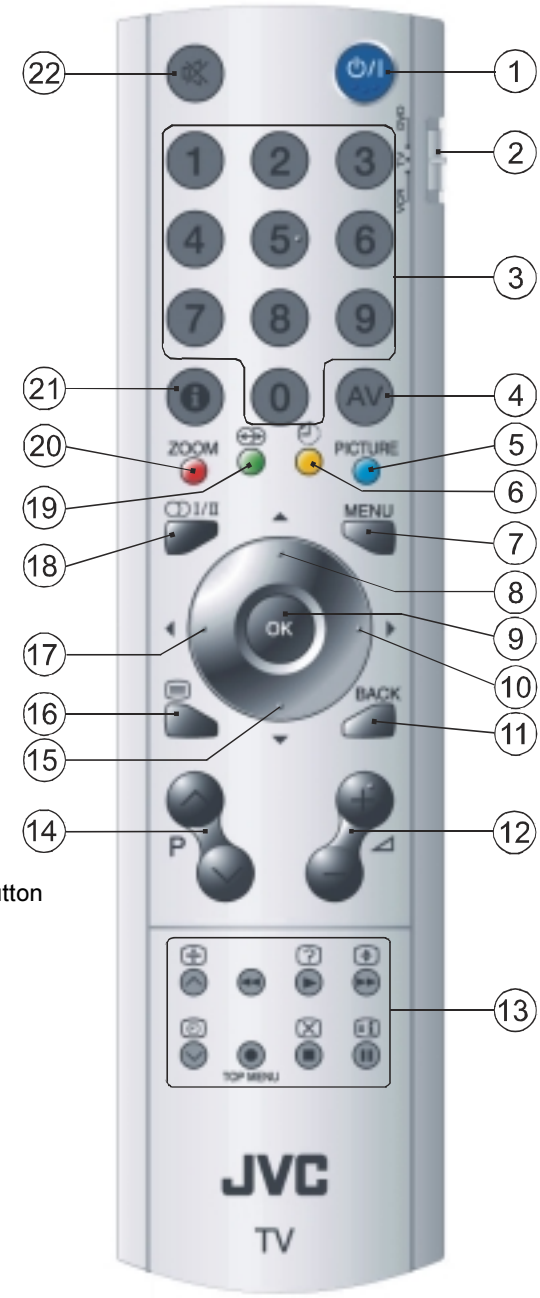
Turn off the power, clean the screen and cabinet with a soft, dry cloth. We recommend that you do not use any proprietary polishes or solvents on the screen or cabinet as this may cause damage.

Disposal...

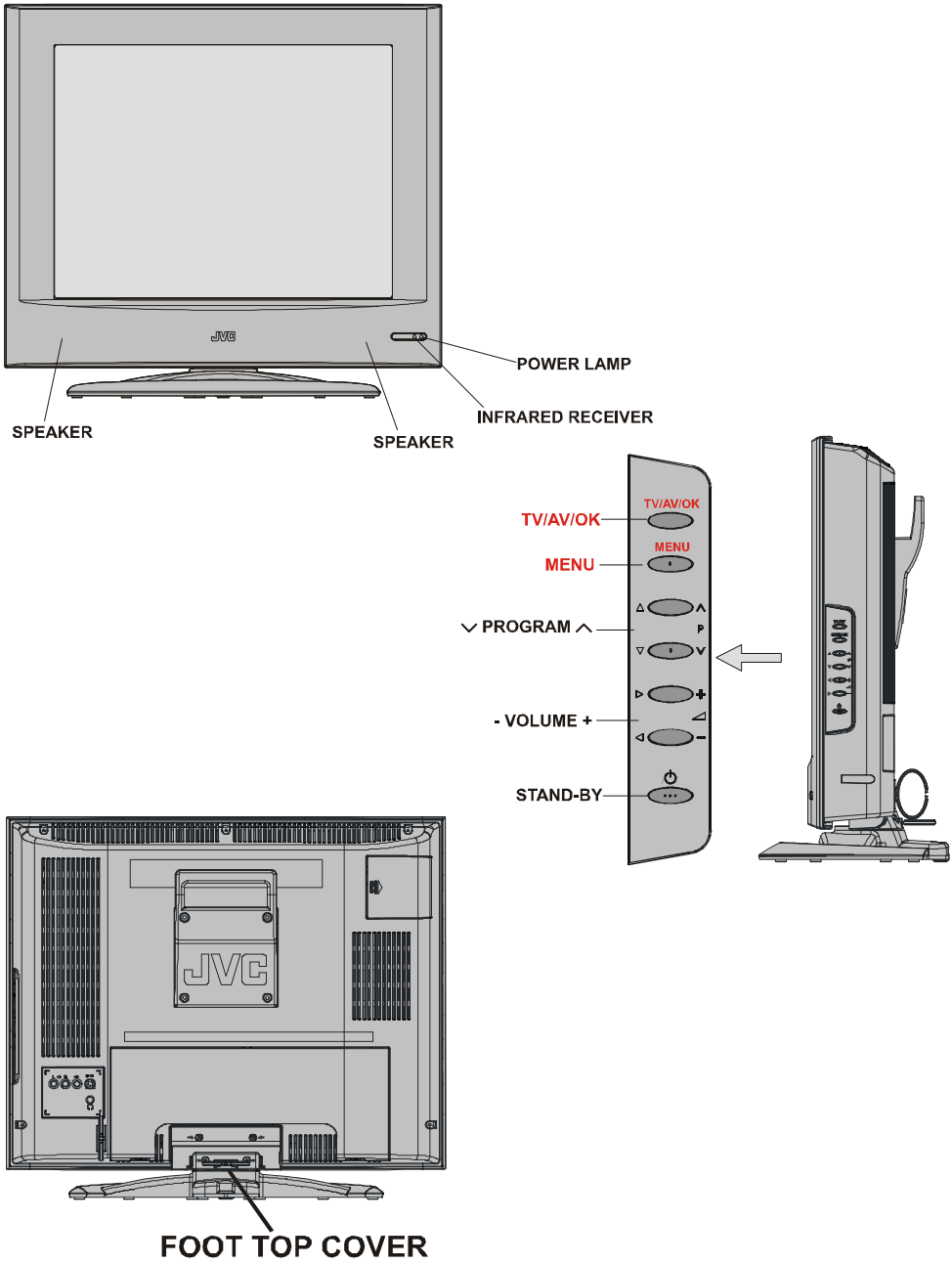
When the set reaches the end of its useful life please dispose of it in accordance with Local Government Regulations or at a recycling centre.

Remote Control Buttons

① ⏻ / **I** = (Stand By) button
② TV / VCR / DVD Switch
③ Number buttons
④ **AV** button (EXT-1, EXT-1S, EXT-1RGB, EXT-2, EXT-2S or PC)
⑤ **BLUE / PICTURE** Mode button
⑥ **YELLOW** / Sleep Timer button
⑦ **MENU** button
⑧ ▲ = Cursor Up button
⑨ OK button
⑩ ▶ = Cursor Right button
⑪ **BACK** button
⑫ Volume Up/Down buttons
⑬ Teletext / VCR /DVD Control buttons
⑭ Programme Up/Down buttons
⑮ ▼ = Cursor Down button
⑯ = Teletext Button
⑰ ◀= Cursor Left button
⑱ I/II = Stereo / Bilingual button
⑲ **GREEN** / Hyper Sound On/Off button
⑳ **RED / ZOOM** Mode button
㉑ = Information Button
㉒ = Mute button



Control Panel Buttons



With certain combinations of connectors and leads the back cover may not be easily fitted. If the cover is left off, this in no way infringes safety requirements.

Using the stand

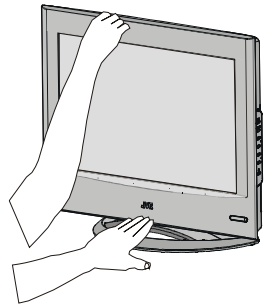
This TV comes with a Table Top Stand already attached.

This stand can be used to adjust the direction of the TV screen 10° up, 5° down, and 20° to the left or right.

Tilt the TV up and down:

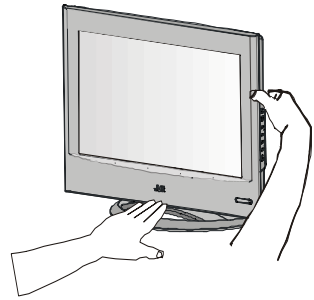
While holding the bottom of the stand with one hand, use your other hand to hold the middle of the top of the TV and slowly tilt the TV up and down.

• As a safety measure, the stand is constructed so that it requires a certain amount of force to tilt the TV.



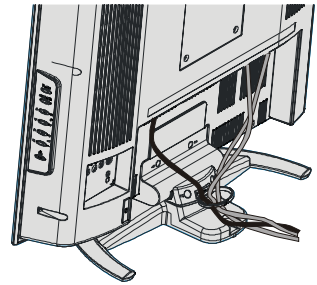
Rotate the TV to the left and right:

While holding the bottom of the stand with one hand, use your other hand to hold the edge of the panel and slowly adjust the direction of the TV screen.



Cable holder

A cable holder which is used to keep the connection cables tidy is attached to the back of the stand.



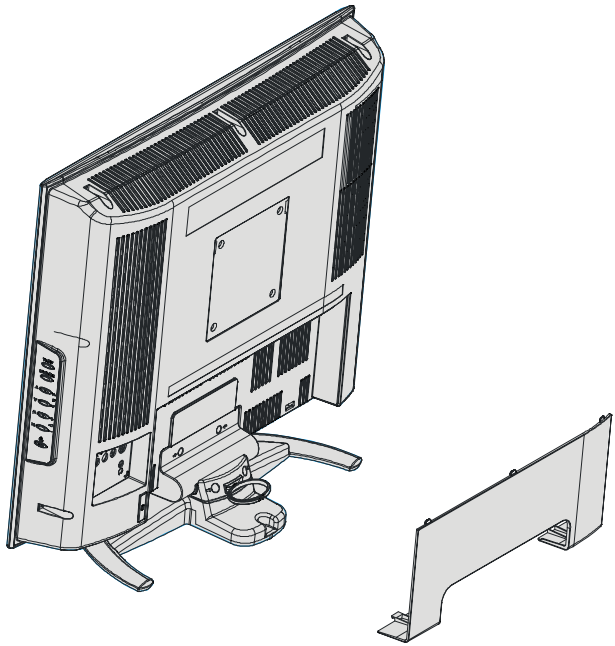
Remove the terminal Cover

There are connection terminals behind the covers of the rear of the TV. Remove the cover before connecting an antenna, DVD or VCR.

Remove the covers by removing the hooks. When replacing the covers, place the side or bottom of the covers against the TV and insert the hooks.

• Leave the covers off if they do not fit properly. DO NOT force to replace the covers. Doing so may cause damages of the connection cables and the covers.

• Leave these covers off when mounting the TV on a wall.



• 100 mm mount based on VESA regulation is equipped.

• The handle and the stand can be left by loosing the screws with a screwdriver when mounting the TV on a wall.

• Spread a soft cloth on a flat table and then place the TV on the cloth with the screen facing downwards when you leave the handle and the stand.

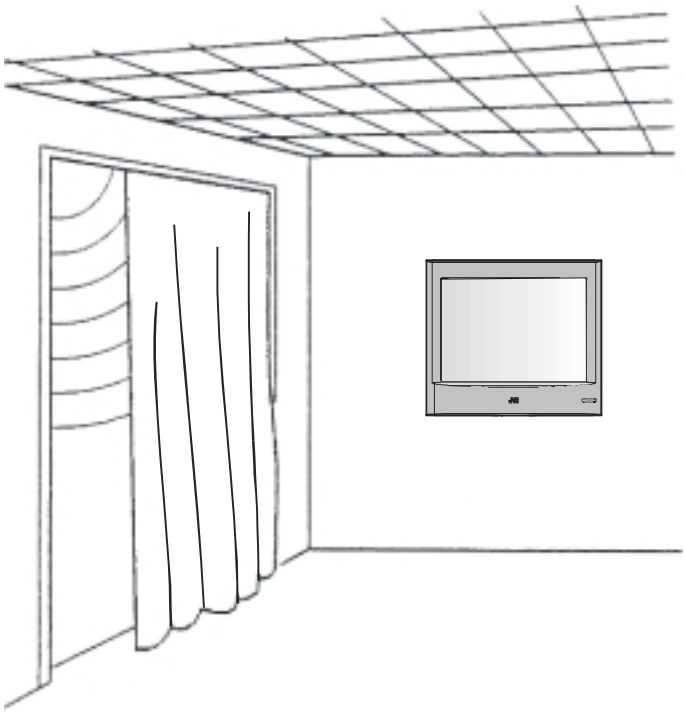
Where to install

Locate the TV away from direct sunlight and strong lights, soft, indirect lighting is recommended for comfortable viewing. Place on a sturdy platform, the mounting surface should be flat and steady, it should then be secured to the wall with a sturdy tie using the hook on the back of the TV, this will prevent it from falling over. Use curtains or blinds to prevent direct sunlight falling on the screen.

A floor and table top stand are available for this television, or and angled bracket which enables the TV to be wall-mounted.

The LCD display panels are manufactured using an extremely high level of precision technology, however sometimes some parts of the screen may be missing picture elements or have luminous spots. This is not a sign of a malfunction.

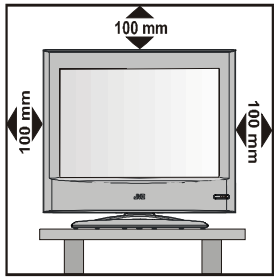
Make sure the TV is located in a position where it cannot be pushed or hit by objects, as pressure will break or damage the screen.



Preparation

Install Display on solid horizontal surface such as a table or desk.

For ventilation, leave a space of at least 10 cm free all around the set. To prevent any fault and unsafe situations, please do not place any objects on top of the set.



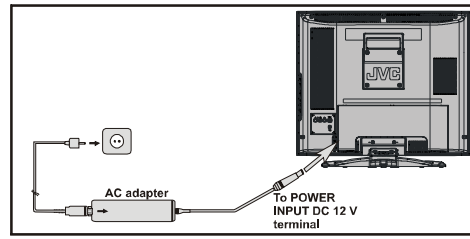
Features

- It is a remote controlled colour television and PC monitor.
- 100 programmes from VHF, UHF bands or cable channels can be preset.
- It can tune cable channels.
- Controlling the TV is very easy by its menu driven system.
- It has an Euroconnector socket for an external device (such as VCR, DVD player, video games etc.)
- A2+Nicam stereo sound system.
- Multilanguage OSD.
- Teletext (FLOF(Fastext),TOP,WST).
- It is possible to connect headphone.
- A.P.S. (Automatic programming system)
- All programmes can be named.
- Forward or backward automatic tuning.
- Sleep timer.
- Child lock
- Auto, 4:3, 16:9
- Automatic sound mute when no transmission.
- When no valid signal is detected, after 5 minutes the TV switches itself automatically to stand-by mode.
- NTSC Playback.
- PLL (Frequency Search)
- PC input (Support Up to 1024 x 768)

Before Switching on your TV

Power connection

Only use the adaptor supplied with this product.

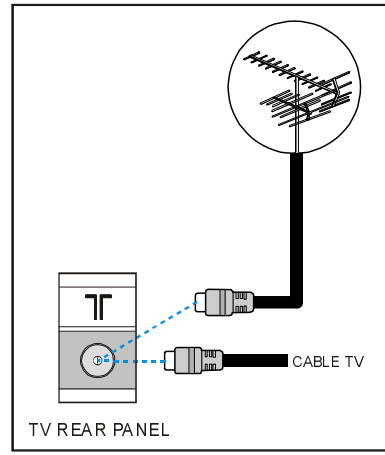


IMPORTANT: The TV set is designed to operate on **12 V DC. For this, an adaptor is used which gives 12V DC voltage. Connect this adaptor to a system that supplies 100-240V AC, 50 Hz.**

- After unpacking, allow the TV set to reach the ambient room temperature before you connect the set to the mains.

Connections to the RF input socket

- Connect the aerial or cable TV plug to the RF input socket located at the back of the TV and connect the cable plug coming out from the TV out socket located at the devices (VCR, DVB etc.) to this socket as well.



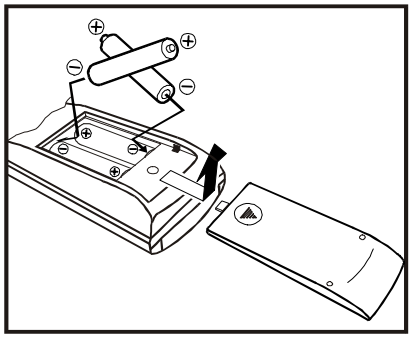
How to connect other devices

IMPORTANT: Switch off the TV before connecting any external device.

Sockets for external connections are at the back of the TV. For connection of other devices via Euroconnector refer to the manuals of the related devices.

Inserting batteries in the remote control handset

- Remove the battery cover located on the back of the handset by gently pulling downwards from the indicated part.
- Insert two AA/R6 dry cell or equivalent type of batteries inside.
- Replace the battery cover.



NOTE: *Remove the batteries from remote control handset when it is not to be used for a long period. Otherwise it can be damaged due to any leakage of battery.*

Old batteries must be disposed in a designated area. If performance of the remote control reduces, replace the batteries with the correct type. Do not combine a used, old battery or a new one or mixed battery types. Remove dead batteries immediately to prevent acid from leaking into the battery compartment.

Switching the TV ON/OFF

To switch the TV on

Your TV will switch on in two steps:

1- Connect the power supply cord to the system. Then the TV switches itself to stand-by mode and the power lamp becomes red.

2- To switch on the TV from stand-by mode either:

Press the "⏻ / **I**" button on the remote control or on the right side of the TV,

or,

Press a digit button on the remote control so that a programme number is selected,

or,

Press **"P/Ch"** buttons on the right side of the TV or press "P∨" or "P∧" buttons on the remote control, so that last switched off programme is selected.

Either way the TV will switch on and the power lamp will become green.

To switch the TV off

- Press the "⏻ / **I**" button on the remote control or on the right side of the TV, so the TV will switch to stand-by mode and the power lamp will become red.

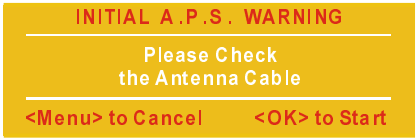
NOTE: To switch the TV off completely remove the mains plug from the socket.

Initial Settings

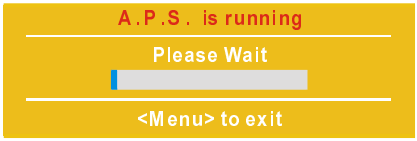
First A.P.S. (Automatic Programming System)

The following menu will be displayed on the screen when you turn the TV on for the first time. A.P.S. searches and sorts all channels and stores them automatically on your TV, according to the transmission of programme systems in your area.

First of all choose **language** and **country** by using "▲" / "▼" and "◀" / "▶" buttons. This will affect the sort process in A.P.S. To start A.P.S., select **A.P.S.** by using "▲" / "▼" buttons and press the "▶" or "**OK**" button. The following warning is displayed.



Press the "**OK**" button to start A.P.S.



After A.P.S. is finalized, Program Table will be displayed on the screen. In the Program Table you will see the programme numbers and names assigned to the programmes.

Operating the TV

You can operate your TV using both the remote control handset and onset buttons.

Volume setting and programme selection can be made by using the buttons at the control panel on the right side of the TV.

Operating with the buttons on the TV

Volume Setting

- Press "-◿" button to decrease volume or "◿+" button to increase volume, so a volume level scale (slider) will be displayed at the middle of the bottom on the screen.

Programme Selection

- Press "P∧" button to select the next programme or "∨P" button to select the previous programme.

Switching input mode

- Pressing **TV/AV/OK** button will change the input mode.

Entering Main Menu

- Press "**MENU**" button to enter Main menu. In the Main menu select submenu using "∨P" or "P∧" button and enter the sub-menu using "-◿" / "◿+" or **TV/AV/OK** button. To learn the usage of the menus, refer to the Menu System sections.

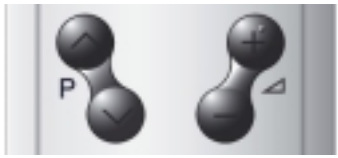
Operating with Remote Control

The remote control handset of your TV is designed to control all the functions of the model you selected. The functions will be described in accordance with the menu system of your TV.

Functions of the menu system are described in following sections.

Volume Setting

Press "◢ **+**" button to increase volume. Press "◢ **-**" button to decrease volume. A volume level scale (slider) will be displayed in the middle at the bottom of the screen.



Programme Selection (Previous or next programme)

- Press "P∨" button to select the previous programme.
- Press "P∧" button to select the next programme.

Programme Selection (direct access)

Press digit buttons on the remote control to select programmes between 0 and 9. TV will switch to the selected programme. To select programmes between 10 - 99, press the digit buttons consecutively which programme you want to select (eg. for programme 27, first press 2 and then 7). When it is late to press second digit button only the first digit programme will be displayed. The limit of the delay time is 3 seconds.

Example: PR6 → press 6

PR12 → press 1 and 2

Press directly the programme number to reselect single digit programmes.

Hint: *The channel list numbers are assigned by the broadcasters. Because not all channels are broadcast free-to-air and stored by the receiver, the channel list numbers do not run continuously. The fifteenth channel in the list, for example, may not be channel number 15 but channel number 17.*

Menu System

Your TV has been designed with a menu system to provide an easy manipulation of a multifunction system. The TV is controlled by choosing the commands, which are displayed on the screen.

Press the "**MENU**" button. The menu will be displayed in the middle of the screen.

Press "◀" or "▶" button to select a menu title and then "▲" or "▼" button to select a menu item. Press "◀" / "▶" or "**OK**" buttons to enter the menu item.

In AV modes, menus appear the same as in TV mode except the Installation menu.

- Press the "**MENU**" button again to remove menu.
- Press the "**BACK**" button to return to the previous menu.

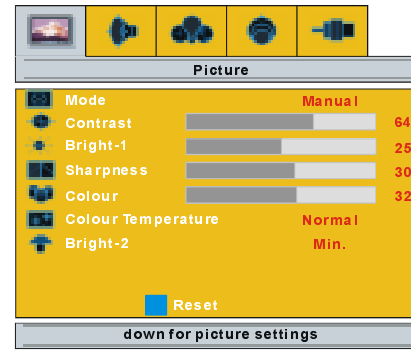
Picture Menu

By pressing "◀" or "▶" button, select the first icon. Picture menu appears on the screen.

Setting Mode

- As you enter the picture menu, Mode will be the first item.
- By pressing "◀" or "▶" button you may choose one of these options:

  Manual, Bright, Standard and **Soft**.



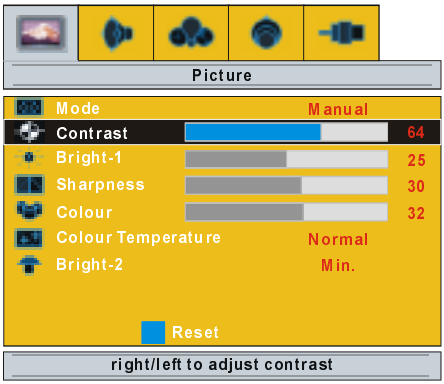
- **Bright**, **Standard** and **Soft** modes are all preset. When these modes are selected Contrast, Bright-1, Sharpness and Colour can not be changed. They can only be changed when **Manual** is selected as a picture mode.

Setting Contrast

• Using "▲" or "▼" button select **Contrast**.

• Press "▶" button to increase contrast level.

• Press "◀" button to decrease contrast level.



Setting Bright-1

• Using "▲" or "▼" button select **Bright-1**.

• Press "▶" button to increase brightness.

• Press "◀" button to decrease brightness.

Setting Sharpness

• Using "▲" or "▼" button select **Sharpness**.

• Press "▶" button to increase sharpness level.

• Press "◀" button to decrease sharpness level.

Setting Colour

• Using "▲" or "▼" button select **Colour**.

• Press "▶" button to increase colour level.

• Press "◀" button to decrease colour level.

Setting Colour Temperature

• Using "▲" or "▼" button select **Colour Temperature.**

• Press "◀" or "▶" button to select "**Warm**", "**Cool**" or "**Normal**".

Setting Bright-2

This item changes the back light of the picture.

• Using"▲" or "▼" button select **Bright-2**.

• Press "◀" or "▶" button to select "**Min.**", "**Med.**" or "**Max.**".

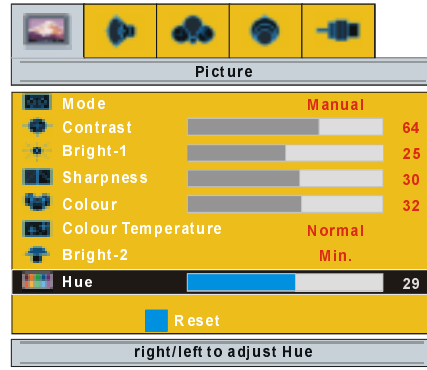
Setting Hue

This item is displayed in Picture menu when the TV receives an NTSC signal.

• Using "▲" or "▼" button select **Hue**.

• Press "▶" button to increase hue level.

• Press "◀" button to decrease hue level.



Reset

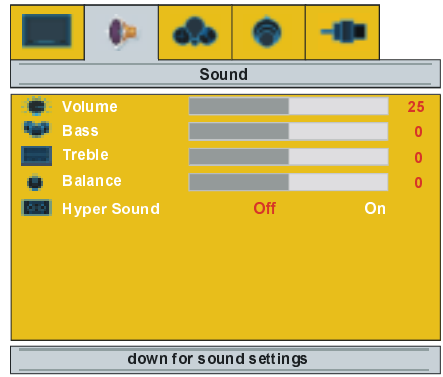
Press BLUE button to reset the **Manual** mode settings to factory default settings.

To Store the Settings

In the Picture Menu, all settings are stored automatically.

Sound Menu

By pressing "◀" or "▶" button, select the second icon. Sound menu appears on the screen.



Setting Volume

• Press "▶" button to increase volume.

• Press "◀" button to decrease volume.

Or you can directly change the volume settings using "◢ +" (to increase) or "- ◢" (to decrease) button.

Setting Bass Level

• Using "▲" or "▼" button select **Bass** Level.

• Press "▶" button to increase bass level.

• Press "◀" button to decrease bass level.

Setting Treble Level

• Using "▲" or "▼" button select **Treble**.

• Press "▶" button to increase treble level.

• Press "◀" button to decrease treble level.

Setting Balance

It allows adjusting the distribution between the left and right speakers.

• Using "▲" or "▼" button select **Balance**.

• Press "▶" button to change balance rightward.

• Press "◀" button to change balance leftward.

Hyper Sound

• Using "▲" or "▼" button select **Hyper Sound.**

• Pressing "◀" or "▶" button will turn this feature on or off.

Pseudo/spatial effect can be turned on or off via the Hyper Sound item in the Sound menu or by remote control. In Mono transmission the left and right channels will be added at left channel and dummy stereo effect will be introduced to end-user. In stereo transmission it yields a phase difference between left and right channels.

To Store The Settings

In the Sound Menu, all settings are stored automatically.

Feature Menu

By pressing "◀" or "▶" button, select the third icon. Feature menu appears on the screen.

Sleep Timer

The **Sleep Timer** is used to turn the TV off after a defined period of time after selecting this item. The timer can be programmed between Off and 120 minutes in steps of 10 minutes. (Off, 10, 20, 30, ... , 110, 120)

If the sleep timer is activated, it starts the countdown for 60 seconds before the end of the selected time. Then the TV goes automatically to stand-by mode.

Child Lock

You can use this feature to prevent children changing programmes or adjustments etc. without remote control.

• Using "▲" or "▼" button select **Child Lock**.

• Press "◀" / "▶" button to select Child Lock On or Off .

When **Off** is selected, there will be no difference in the operation of your TV. When **On** is selected, the TV can only be controlled by the remote control handset. In this case the control panel buttons, except "⏻" button, on the right side of the TV will not work.

Selecting Menu Language

• Using "▲" or "▼" button select **Language**.

• Press "◀" or "▶" button to select menu language.

Blue Back

You can set the TV to automatically change to a blue screen if the signal is weak or absent, or when there is no input from an external device.

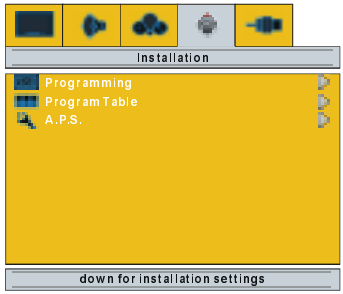
The **Blue Background** feature can be turned on or off by pressing "◀" or "▶" button.

To Store Settings

In Feature menu all settings are stored automatically.

Installation Menu

By pressing "◀" or "▶" button, select the fourth icon. Installation menu appears on the screen.



Programming Menu

By pressing "▲" or "▼" button, select Programming and press "▶" button. Programming menu appears on the screen.

Selecting Program Number

- Using "▲" or "▼" button select Program Number.
- To select a program number, you can use "◀" / "▶" button or Digit Buttons.

Setting Program Name

- Using "▲" or "▼" button select Program Name.
- Press "▶" button to select a character and "▲" or "▼" button to change it.
- After the program name is entered, press "◀" button to exit.

Selecting Band

Band, can be chosen either,

- "C" or "S" by pressing "◀" or "▶" button.

Selecting Channel

Channel can be changed by "◀" or "▶" button or by Digit Buttons.

Selecting Colour System

Using "◀" or "▶" button on **Colour System**, you can change the colour system to **PAL, SECAM** or **AUTO**.

Note: In EXT mode, you can choose NTSC 3.58 and NTSC 4.43 as well.

Selecting Sound System

Using "◀" or "▶" button on **Sound System**, you can change the standard to **BG, I, DK, L/ L'**.

Selecting Fine Tuning

You can use the Fine Tuning process for fine adjustment (after coarse adjustment), if you are not happy about the image on the screen.

Use "◀" or "▶" button on **Fine Tuning** item, until getting the best image on the screen.

Selecting Manual Search

To start the manual search process, press "▶" button for forward search or "◀" button for backward search. If a signal is found or reaches to end of the band after searching, press "◀" or "▶" buttons to continue search process. To stop the search process when you want, press the **MENU** button at any time.

Setting VCR (Video Cassette Recorder) Mode

- This item can be seen in **TV**, **EXT-1** and **EXT-2** modes.

• If you want to watch a **VCR** source, then it will be better to set **VCR** mode “on”. For this, while the cursor is on this item press the “◀” or “▶” button to set it “On”.

• If you want to watch a **DVD** , then you must set this item “off”; because **DVD** is not a source like a **VCR** and to see the picture better, you must set the **VCR** mode “Off”.

To Store Settings

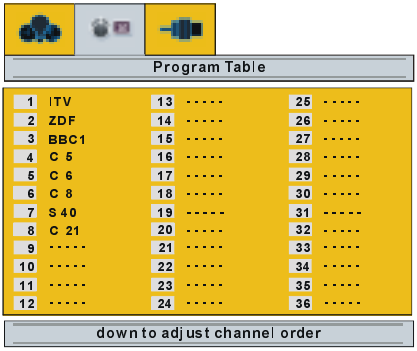
• Press “▶” button on **Store** option to store Programming menu settings.

• You can also store a setting by pressing “**OK**” button on the selected setting.

• “**STORING**” is displayed on screen during the store process.

Program Table

By pressing “◀” or “▶” button, select the second icon. Program table appears on the screen.



Program table shows the programme numbers and the names assigned to the programmes.

Here you can adjust the channel order by moving or deleting the channels.

First of all press the “▼” button.

Using the GREEN button you can move a programme into another programme’s location. Press the direction buttons to select a programme and press the GREEN button. Then select another programme and press the GREEN button again. The first selected programme moves into the location of the second selected programme.

Using the YELLOW button you can delete any programme you want.

A.P.S. (Auto Programming System)

By pressing “▶” button, select the third icon. A.P.S. menu appears on the screen.

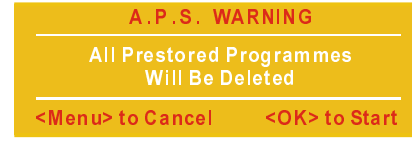
country

By pressing “▲” or “▼” button, select **country.** Press “◀” or “▶” button to select the country where you are.

A.P.S.

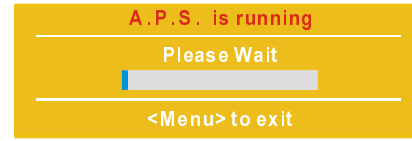
By pressing “▲” or “▼” button, select **A.P.S.**

When “▶” or “**OK**” button is pressed, the following warning is displayed.



If you want to cancel A.P.S. function, press the “**MENU**” button.

If “**OK**” button is pressed, A.P.S. starts and the following warning is displayed.

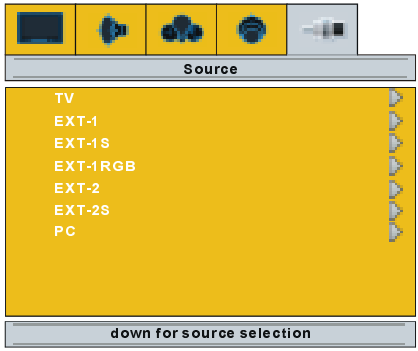


If you press the **“MENU”** button, A.P.S. function stops and Program table appears on the screen.

If you wait till A.P.S. is finalized, Program table is displayed with the programmes found and located.

Source Menu

By pressing "◀" or "▶" button, select the fifth icon. Source menu appears on the screen.



Use "▲" or "▼" button to select a mode and then press "▶" or "**OK**" button to switch to that mode. You can also switch your TV to EXT modes by pressing directly to "**AV**" button.

Other Features

TV Status

Programme Number, **Programme Name and Sound Indicator** are displayed on screen after programme change for 3 seconds.

This information is also displayed by pressing the "ⓘ" button. Pressing this button again shows the current time. Pressing this button once more removes the on-screen display.

To Display the Time

While watching a TV programme with teletext transmission, press "ⓘ" button twice. The current time information captured from teletext will be displayed on the screen.

If the programme being watched does not have teletext transmission, no time information will be displayed.

The time information will disappear after pressing the "ⓘ" button again.

Sound Indicator

"I/II" button is used to select Mono or Stereo, or Dual I or Dual II.

Mono

In Mono broadcast or in forced-mono (for stereo broadcast).

Stereo

In Stereo broadcast.

Dual I

If dual broadcast is detected. Dual I is selected in default and also can be selected after Dual II by Remote Control.

Dual II

If Dual II is selected by Remote Control.

Hyper Sound

By selecting Hyper Sound in sound menu or by pressing the "⊕" button on your remote control, Pseudo/Spatial effect can be turned on or off.

In Mono transmission the left and right channels will be added at left channel and dummy stereo effect will be introduced to end-user.

In stereo transmission it yields a phase difference between left and right channels.

Picture Mode

Picture mode OSD is displayed when BLUE button is pressed. Picture mode can be changed to Manual, Bright, Standard and Soft.

Sleep Timer

Sleep Timer mode OSD is displayed when YELLOW button is pressed. See **page 15** for detailed information.

Mute Indicator

It is placed in the upper right side of the screen when enabled, and it stays there until it is disabled.

To cancel mute, there are two alternatives; the first one is by pressing the "🔇" button, this volume is set to the preceding value, and the second one is increasing or decreasing the volume level.

Volume Bar

It is displayed in the lower middle of the screen. When a volume command is received (pressing "◢ +" or "◢ -" by Remote Control or Control panel at the right side of the TV) and no menu is active, it stays on the screen for 3 seconds, after the last volume command or until another command is received in between.

EXT Modes

By pressing the "**AV**" button you can switch your TV to EXT modes (except being in Teletext). Pressing this button consecutively will switch the TV in one of the optional EXT modes: **EXT-1, EXT-1S, EXT-1RGB, EXT-2, EXT-2S** and **PC**.

In order to quit the EXT mode press any digit buttons or "**P∨**" or "**P∧**".

Zoom Modes

Zoom mode can be changed by pressing Red button. You can change the screen size according to the picture aspect ratio. Select the optimum one from the following **ZOOM** modes: **Auto**, **4:3** and **16:9**.

AUTO

When a **WSS (Wide Screen Signalling)** signal, which shows the aspect ratio of the picture, is included in the broadcast signal or the signal from an external device, the TV automatically changes the **ZOOM** mode to **4:3** or **16:9** according to the **WSS** signal.

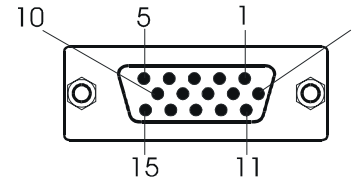
- When the **AUTO** mode does not function correctly due to poor **WSS** signal quality or when you want to change the **ZOOM** mode, change to another **ZOOM** mode manually.

PC Mode

Installation

- Power off both Computer and Display before making any connections.
- Set your PC's resolution correctly before connecting to the TV. See the table in **page 26** for supported modes.
- Use a D-SUB cable to connect the TV's PC input to the computer's RGB output terminal.

15 Pin Mini D-Sub Connector



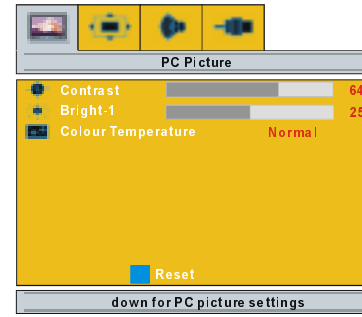
- Tighten the screws of the Display cable until the connectors are fastened securely (finger-tighten only).

Menu System in PC mode

Press the "**MENU**" button. The menu will be displayed in the middle of the screen.

PC Picture Menu

By pressing "◀" or "▶" button, select the first icon. PC Picture menu appears on the screen.

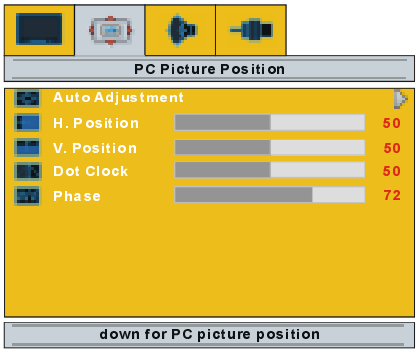


The items in this menu are described at **Picture menu** starting **page 13**.

Press BLUE button to reset the **Manual** mode to factory default settings.

PC Picture Position Menu

By pressing "◀" or "▶" button, select the second icon. PC Picture Position menu appears on the screen.



Auto Adjustment

If you shift the picture horizontally or vertically to an unwanted position, use this item to put the picture into correct place automatically.

- Select **Auto Adjustment** item by using "▲" or "▼" buttons.
- Press "▶" button.
- Press "**MENU**" button or "**BACK**" button to store the value.

Warning: Auto position adjustment recommended to be done with the full screen image for the proper adjustment.

Horizontal Position

This item shifts the image horizontally to right hand side or left hand side of the screen.

- Select **H. Position** item by using "▲" or "▼" button.
- Use "◀" or "▶" button to adjust the value.
- Press "**MENU**" button or "**BACK**" button to store the value.

Vertical Position

This item shifts the image vertically towards the top or bottom of the screen.

- Select **V. Position** item by using "▲" or "▼" button.
- Use "◀" or "▶" button to adjust the value.
- Press "**MENU**" button or "**BACK**" button to store the value.

Dot Clock

Dot Clock adjustments correct interference that appear as vertical banding in dot intensive presentations like spreadsheets or paragraphs or text in smaller fonts.

- Use "◀" or "▶" button to adjust the value.

Phase

Depending on the resolution and scan frequency that you input to the TV Set, you may see a muddy or noisy picture on the screen. In such a case you can use this item to get a clear picture by trial and error method.

- Use "◀" or "▶" button to adjust the value.

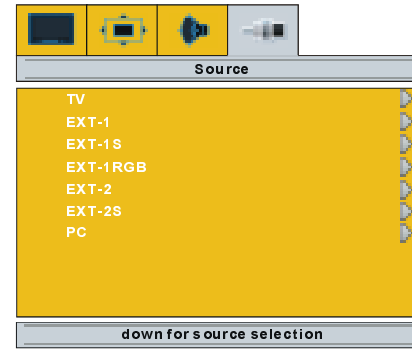
Sound Menu

By pressing "◀" or "▶" button, select the third icon. Sound menu appears on the screen.

The items in this menu are described at **Sound menu** starting **page 14**.

Source Menu

By pressing "◀" or "▶" button, select the fourth icon. Source menu appears on the screen.



Use "▲" or "▼" button to select a mode and then press "▶" or "**OK**" button to switch to that mode.

Sound in PC mode

- Connect the PC's Audio output to the TV's **PC Audio In** socket with an audio cable.

Teletext

Teletext is an information system that displays text on your TV screen. Using the Teletext information system you can view a page of information on a subject that is available in the list of contents (index).

On screen display is not available in text mode.

Contrast, brightness or colour control is not available, but volume control is available in text mode.

To operate Teletext

- Select a TV station on which Teletext is being transmitted.
- Press (TELETEXT) "▤" button. Usually the list of contents (index) is displayed on the screen.

To select a page of Teletext

- Press the appropriate digit buttons for the required Teletext page number.

The selected page number is displayed at the top left corner of the screen. The Teletext page counter searches until the selected page number is located, so that the desired page is displayed on the screen.

- Press "P∧" button to move the Teletext screen forward one page at a time.
- Press "P∨" button to move the Teletext screen backward one page at a time.

To Select Index Page

- To select the page number of the index (generally page 100), press "▤i" button.

Searching for a teletext page while watching TV

- In the Teletext mode pressing "⊠" button will switch the screen to the TV mode. In the TV mode enter a page number using digit buttons. The page will be searched and the page number will be displayed on the upper left corner of the screen when the selected page is found. Now you can display this teletext page by pressing "⊠" button.

To Select Double Height Text

- Press "⇕" button for the top half of the information page to be displayed in double height text.
- Press "⇕" button again for the bottom half of the information page to be displayed in double height text.
- Press "⇕" button once more for the full page of normal height text.

To Reveal "concealed" Information

- Pressing "?" button once will reveal answers on a quiz or games page.
- Pressing "?" button again will conceal the revealed answers.

To Stop Automatic Page Change

The teletext page you have selected may contain more information than what is on the screen; the rest of the information will be displayed after a period of time.

- Press "⇕" button to stop the automatic page change.
- Press "⇕" button again to allow the next page to be displayed.

To Select a Subcode Page

Subcode pages are subsections of long Teletext pages that can only be displayed on the screen one section at a time.

- Select the required Teletext page.
- Press "◷" button.
- Select the required subcode page number by pressing four digit buttons (e.g. 0001).
- If the selected subcode page is not displayed in a short time, press "⊠" button. TV programme will be displayed on the screen.
- Teletext page number will be displayed on

the upper left corner of the screen when the selected page is found.

• Press "⊠" button to display the selected Teletext page.

To exit Teletext

• Press "☰" button. The screen will switch to TV mode.

Fastext and Toptext

Your TV supports the 7 page Teletext system. When the page number of any of the 7 pages in memory is entered, the system will not search for the requested page; instead it will display the page automatically.

• Press "P∧" button to move the Teletext screen forward one page at a time.

• Press "P∨" button to move the Teletext screen backward one page at a time.

For Fastext and Toptext

The subject-heading for the information may have a particular colour.

• Press an appropriate **RED**, **GREEN**, **YELLOW** or **BLUE** button in order to reach the relevant page quickly.

For TOPTEXT

If Toptext transmission is present, colour coded buttons will appear in status row.

If Toptext transmission is not present, status row will not appear.

In Toptext mode the "P∧" or "P∨" commands will request the next or previous page respectively. If Toptext transmission is not available, in case of operation of these commands, wraparound occurs. For example page 100 appears to be one greater than page 199.

Peripheral Equipment Connections

There is a wide range of audio and video equipment that can be connected to your TV.

Connection diagrams at the end of this section show you where the different equipment should be connected at the back side of the TV.

Via the Euroconnector

Your TV set has one Euroconnector socket. If you want to connect peripherals (e.g. video, decoder, etc.) which have Euroconnectors, to your TV, use **EXT-1** input.

If an external device is connected via Euroconnector socket, TV is switched to AV mode automatically.

RGB mode

If an equipment can output the **RGB** signals, connect it to the **EXT-1** terminal.

Via the RCA jacks

If you have an equipment (such as a Camcorder) which has the RCA jacks, connect it to the **EXT-2** terminal with the video and audio cables.

Via the ANT (aerial) socket

If your equipment does not have an Euroconnector or RCA jacks, connect it to the TV with an aerial cable. For details, see the manual provided with the equipment.

• To store the test signal that comes from the equipment, see "**Installation Menu**" on page 16 and store it to the program number 0. You can watch images from that equipment to select the program number which you stored the test signal.

Decoder

Cable TV offers you a wide choice of programmes. Most of them are free, others are to be paid for by the viewer. This means that you will need to subscribe to the broadcasting organisation whose programmes you wish to receive. This organisation will supply

you a corresponding decoder unit to allow the programmes to be unscrambled.

For further information ask your dealer. See also the booklet supplied with your decoder.

Connect a decoder with an aerial socket to the TV

• Connect the aerial cable.

Connect a decoder without an aerial socket to the TV

• Connect the decoder to your TV with a eurocable (RCA Jack Cable) to **EXTERNAL** (RCA Jack). When your decoder has a Euroconnector / RCA Jack you can obtain better picture quality if you connect a eurocable (RCA Jack Cable) to **EXTERNAL** (RCA Jack).

TV and Video Recorder (VCR)

• Connect the Video Recorder to the ANT (antenna input) socket of the TV with the aerial cable.

• Connect the Video Recorder to the **EXT-1** terminal with the SCART cable, or connect it to the **EXT-2** terminal with the audio and video cables.

NTSC Playback

Connect a NTSC video recorder to a terminal. Then press "**AV**" button to select the corresponding AV mode.

NTSC 3.58/4.43 system is detected automatically in AV mode.

Camera and Camcorder

To connect to the EXT-2 terminal

Connect your camera or camcorder at the rear side of your TV.

• Connect your equipment to the TV via **VIDEO** (yellow), **AUDIO R** (red) and **AUDIO L** (white) inputs. You should connect the jacks to the input in the same colour.

Connect the decoder to the video recorder

Some video recorders have a special euroconnector for decoder.

• Connect a eurocable to the euroconnector of your decoder and to the special euroconnector of your video recorder. See also the handbook of your video recorder.

• To connect your video recorder to the TV, see TV and Video Recorder section.

If you want to connect more equipment to your TV, consult your dealer.

Connecting Headphones

Use the stereo headphone socket at the rear side of your TV, to connect headphones.

Connecting the PC

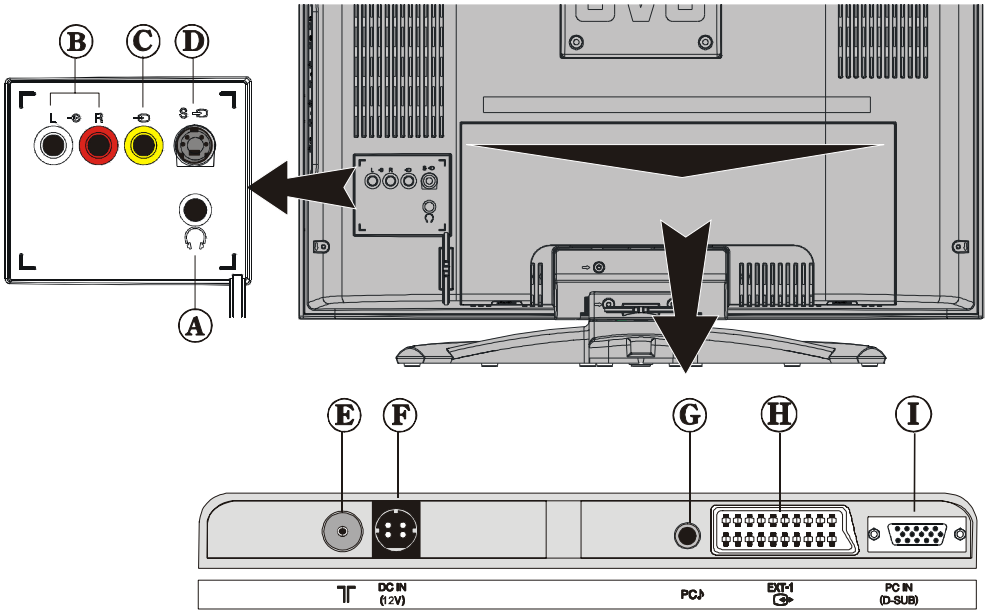
Connect PC monitor with 15-pin PC cable to the 15-pin connector on the rear of the computer. For detail installation procedure see **Installation** in PC mode.

To connect to S-Video input

Connect your camera or camcorder at the rear side of your TV.

• Connect your equipment to the TV via S-Video input at the rear side by using S-Video cables.

Peripheral Equipment Connections



Ⓐ HEADPHONE

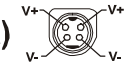
Ⓑ AUDIO L/R

Ⓒ VIDEO IN — EXT-2

Ⓓ S-VIDEO IN

Ⓔ ANTENNA

Ⓕ DC IN (ADAPTOR)



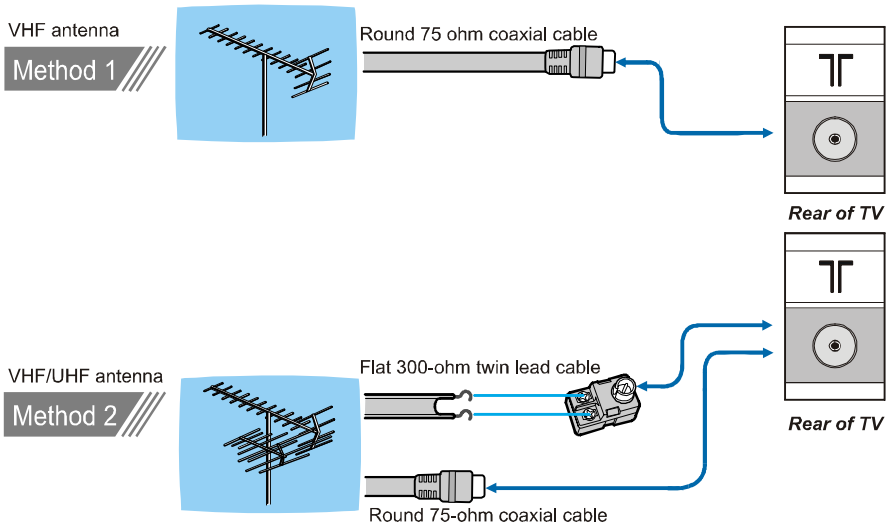
Ⓖ PC AUDIO IN

Ⓗ EXT-1

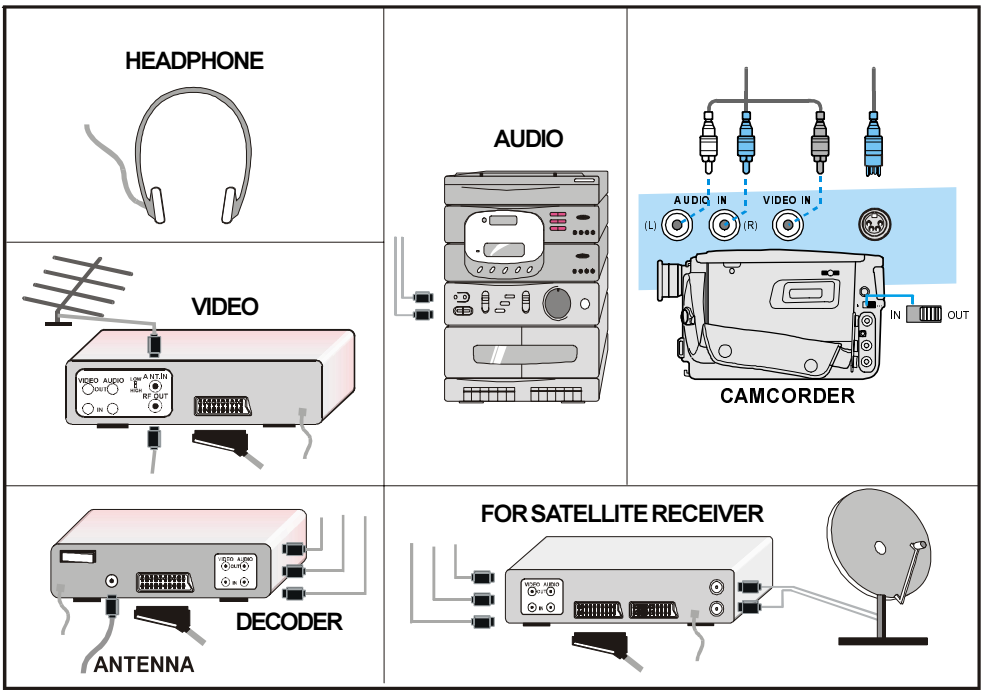
Ⓘ PC INPUT

Antenna Connections

Outdoor Antenna Connections



Peripheral Equipment Connections



PC Input Typical Display Modes

The display has a maximum resolution of 1024 x 768, vertical sync. frequency range of 50-70 Hz and a horizontal sync. frequency range of 30-57 KHz.

The following table is an illustration of some of the typical video display modes.

Mode	Resolution		Frequency	
	Horizontal	Vertical	Hor. (kHz)	Ver. (Hz)
1	640	480	31.4	60
2	800	600	35.1	56
3	800	600	37.9	60
4	1024	768	48.4	60

The native resolution of the TFT-LCD Panel is 800 x 600. Therefore using Mode 3 is advised to get the best PC input display quality.

Tips

Can not turn the TV on?

Check that TV/VCR/DVD switch is set to TV position.

TV may go to stand-by mode when you turn the TV on soon after you turn the TV off. If you can turn the TV on again, it is not a problem.

Can not turn the TV off?

Check that TV/VCR/DVD switch is set to TV position.

Care of the Screen

Clean the screen with a slightly damp, soft cloth. Do not use abrasive solvents as they may damage the TV screen coating layer.

Colours of image on screen are abnormal

Have you selected the correct TV system? Is your TV set or house aerial located too close to the loudspeakers, non-earthed audio equipment or neon lights, etc. ?

Mountains or high buildings can cause double pictures or ghost images. Sometimes you can improve the picture quality by changing the direction of the aerial.

Is the picture or Teletext unrecognisable? Check if you have entered the correct frequency.

The picture quality may degrade when two peripherals are connected to the TV at the same time. In such a case, disconnect one of the peripherals.

No Image on Display Screen

Is the aerial connected properly? Are the plugs connected tightly to the aerial socket? Is the aerial cable damaged? Are suitable plugs used to connect the aerial? If you are in doubt, consult your dealer.

No Image means that your TV is not receiving any transmission. Have you pressed the correct buttons on the remote control? Try once more.

PC Picture

If no PC picture appears, check that the D-SUB cable is connected properly. Check that your PC's resolution set correctly. See **page 26** for supported modes.

Sound

You can not hear any sound. Did you perhaps interrupt the sound, by pressing "🔇" button? Are external speakers connected to the TV?

Sound is coming from only one of the speakers. Is the balance set to one direction extreme? See **Sound** menu.

Remote Control

If your TV no longer responds to the remote control, perhaps the batteries are exhausted. Replace the batteries.

Have you selected the wrong menu? Press "**MENU**" button to return to normal screen or press "**BACK**" button to return to the previous menu.

No solution

Switch your TV set off and on. If this does not work, switch off, remove the mains plug and call the service personnel; never attempt to repair it yourself.

Specifications

Item \ Model	LT-20J50SU
Broadcasting Systems	PAL SECAM BG, DK, I, L, Lp
Channels and Frequencies	VHF (VL) : 46,25 MHz - 168,25 MHz VHF (VH) : 175,25 MHz - 463,25 MHz UHF : 471,25 MHz - 863,25 MHz Cable TV : (S1-S20/ S21-S41)
Input Signal	**Video:** Analog 0,7 Vp-p 75 ohm positive **Sync:** TTL Level positive or negative, Seperate sync.
Horizontal Timing	30 - 69 kHz
Vertical Timing	50 - 75 kHz
Dot Rate	78,75 MHz max.
Panel Size	20,01" (509 mm) (measured diagonally)
Visible Picture Size	408 mm horizontal x 306 mm vertical
Display Resolution	1024 x 768 max.
Number of Preset Channels	100
Channel Indicator	On Screen Display (OSD)
RF Aerial Output	75 Ohm (unbalanced)
Power Requirements	**Adaptor:** 100-240 V AC, 50 Hz / **TV:** 12 V DC
Power Consumption (W)	60 W (max) / STAND-BY <1.2W
Sound Systems	Nicam Stereo, A2
Audio Output	2 x 3 $W_{RMS.}$ (%10 THD)
EXT-1 Terminal	Euroconnector (21-pin, SCART 1) (back of the cabinet) • Video Input, S-Video (Y/C) input, Audio L/R Inputs and RGB inputs are available. • TV broadcast outputs (Video and Audio L/R) are available.
EXT-2 Terminal	RCA connectors x 3 (rear side of the cabinet) S-VIDEO connector x 1 (rear side of the cabinet) • Video input, S-VIDEO (Y/C) input and Audio L/R inputs are available.
PC IN terminal	Analog RGB D-SUB 15 x 1 • PC signal is available (refer to **page 26** for details of the signals which can be input)
PC AUDIO IN terminal	Stereo mini-jack (3.5 mm diameter)
Dimensions (W x H x D)	530 mm x 477 mm x 213 mm 530 mm x 440 mm x 125 mm (TV only)
Weight	8,2 kg (with stand) / 7,2 kg (TV only)
Accessories	Remote control unit x 1 (RM-C1861) / AA/R6 dry cell battery x 2 AC adaptor x 1 Power cord x 1
Headphone jack	Stereo mini-jack (3.5 mm diameter)

JVC

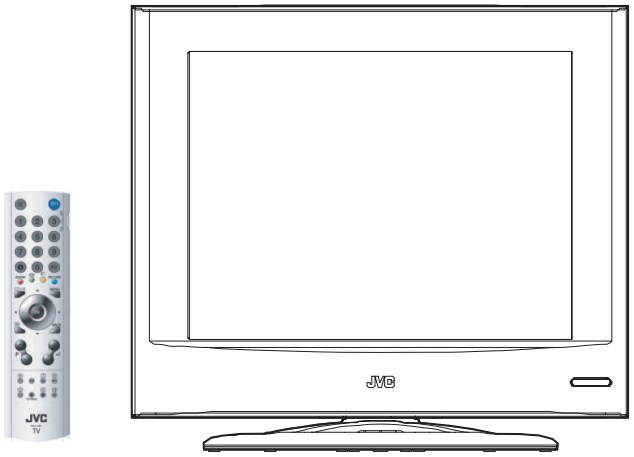
SCHEMATIC DIAGRAMS

WIDE LCD PANEL TELEVISION

LT-20J50SJ,
LT-20J50SU

InteriArt

CD-ROM No.SML200605



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No.YA413
2006/5

LT-20J50SJ, LT-20J50SU

STANDARD CIRCUIT DIAGRAM

■ NOTE ON USING CIRCUIT DIAGRAMS

1.SAFETY

The components identified by the ⚠ symbol and shading are critical for safety. For continued safety replace safety ciritical components only with manufactures recommended parts.

2.SPECIFIED VOLTAGE AND WAVEFORM VALUES

The voltage and waveform values have been measured under the following conditions.

(1)Input signal	: Colour bar signal
(2)Setting positions of each knob/button and variable resistor	: Original setting position when shipped
(3)Internal resistance of tester	: DC 20kΩ/V
(4)Oscilloscope sweeping time	: H ⇒ 20μs / div
	: V ⇒ 5ms / div
	: Othters ⇒ Sweeping time is specified
(5)Voltage values	: All DC voltage values

∗ Since the voltage values of signal circuit vary to some extent according to adjustments, use them as reference values.

3.INDICATION OF PARTS SYMBOL [EXAMPLE]

● In the PW board : R209 → R209

4.INDICATIONS ON THE CIRCUIT DIAGRAM

(1)Resistors

● Resistance value

No unit	: [Ω]
K	: [kΩ]
M	: [MΩ]

● Rated allowable power

No indication	: 1/16 [W]
Others	: As specified

● Type

No indication	: Carbon resistor
OMR	: Oxide metal film resistor
MFR	: Metal film resistor
MPR	: Metal plate resistor
UNFR	: Uninflammable resistor
FR	: Fusible resistor

∗ Composition resistor 1/2 [W] is specified as 1/2S or Comp.

(2)Capacitors

● Capacitance value

1 or higher	: [pF]
less than 1	: [μF]

● Withstand voltage

No indication	: DC50[V]
Others	: DC withstand voltage [V]
AC indicated	: AC withstand voltage [V]

∗ Electrolytic Capacitors

47/50[Example]: Capacitance value [μF]/withstand voltage[V]

● Type

No indication	: Ceramic capacitor
MM	: Metalized mylar capacitor
PP	: Polypropylene capacitor
MPP	: Metalized polypropylene capacitor
MF	: Metalized film capacitor
TF	: Thin film capacitor
BP	: Bipolar electrolytic capacitor
TAN	: Tantalum capacitor

(3)Coils

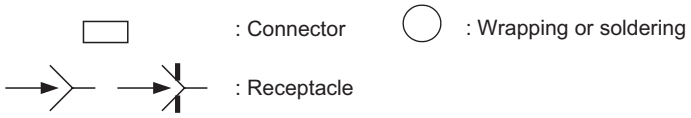
No unit	: [μH]
Others	: As specified

(4)Power Supply

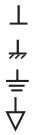
∗ Respective voltage values are indicated

(5)Test point

(6)Connecting method



(7)Ground symbol



5.NOTE FOR REPAIRING SERVICE

This model's power circuit is partly different in the GND. The difference of the GND is shown by the LIVE : (⊥) side GND and the ISOLATED(NEUTRAL) : (⏚) side GND. Therefore, care must be taken for the following points.

(1)Do not touch the LIVE side GND or the LIVE side GND and the ISOLATED(NEUTRAL) side GND simultaneously. if the above caution is not respected, an electric shock may be caused. Therefore, make sure that the power cord is surely removed from the receptacle when, for example, the chassis is pulled out.

(2)Do not short between the LIVE side GND and ISOLATED(NEUTRAL) side GND or never measure with a measuring apparatus measure with a measuring apparatus (oscilloscope, etc.) the LIVE side GND and ISOLATED(NEUTRAL) side GND at the same time. If the above precaution is not respected, a fuse or any parts will be broken.

◆ **Since the circuit diagram is a standard one, the circuit and circuit constants may be subject to change for improvement without any notice.**

NOTE

◆ **Due improvement in performance, some part numbers show in the circuit diagram may not agree with those indicated in the part list.**
When ordering parts, please use the numbers that appear in the Parts List.

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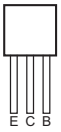
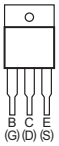
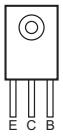
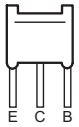
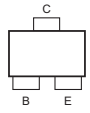
USING P.W. BOARD

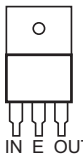
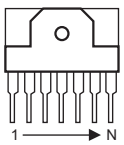
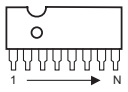
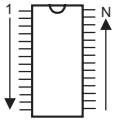
P.W.B ASS'Y name	LT-20J50SJ	LT-20J50SU
MAIN P.W. BOARD	VE-20255339	←
AV JACK P.W. BOARD	VE-20239086	←
SIDE CONTROL P.W. BOARD	VE-20235650	←
LED P.W. BOARD	VE-20247127	←

SEMICONDUCTOR SHAPES

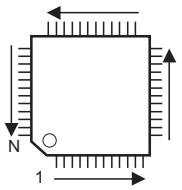
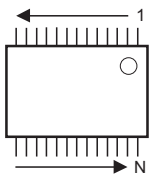
TRANSISTOR

BOTTOM VIEW	FRONT VIEW				TOP VIEW
					CHIP TR 

IC

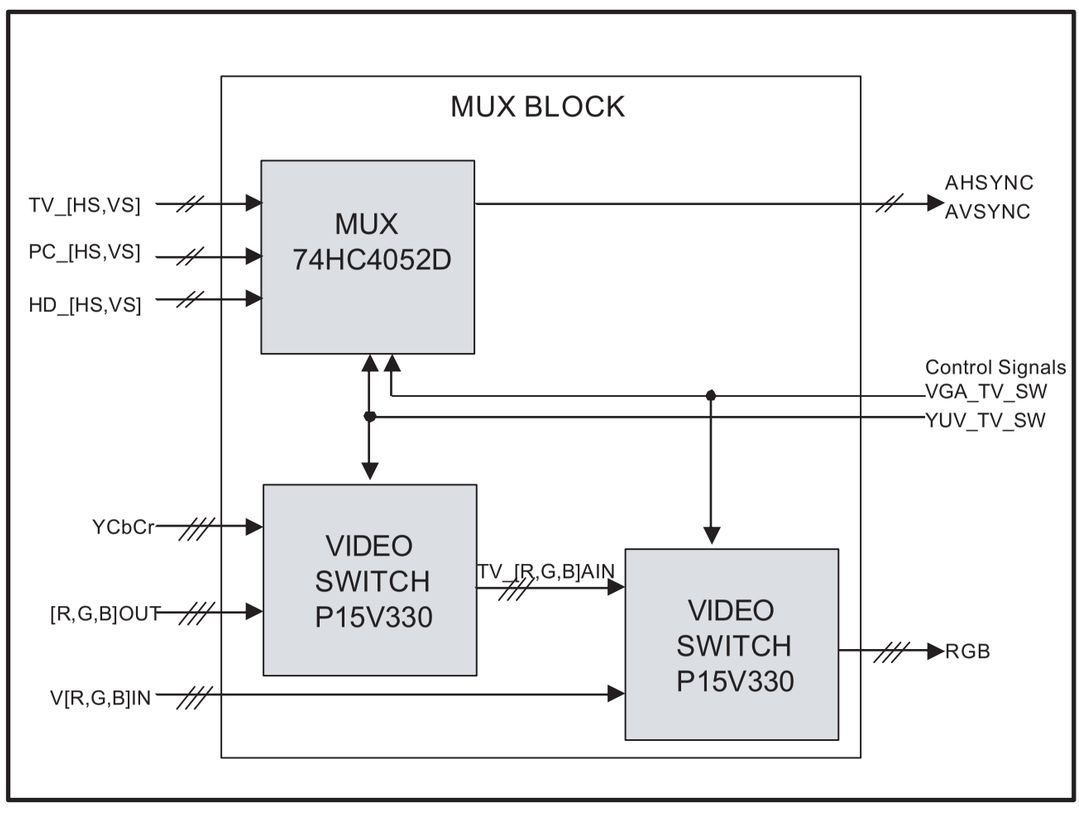
BOTTOM VIEW	FRONT VIEW			TOP VIEW
				

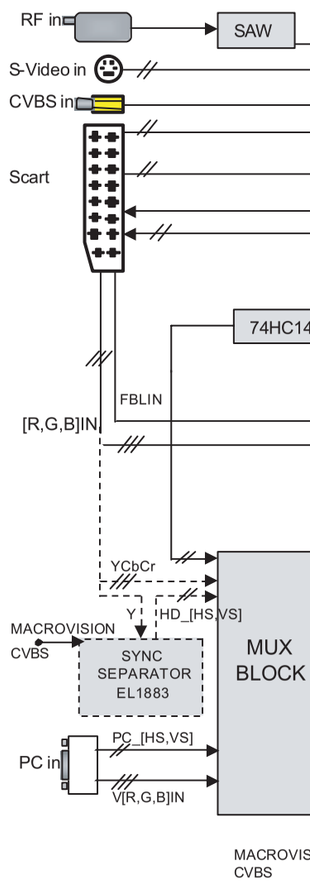
CHIP IC

TOP VIEW		
		

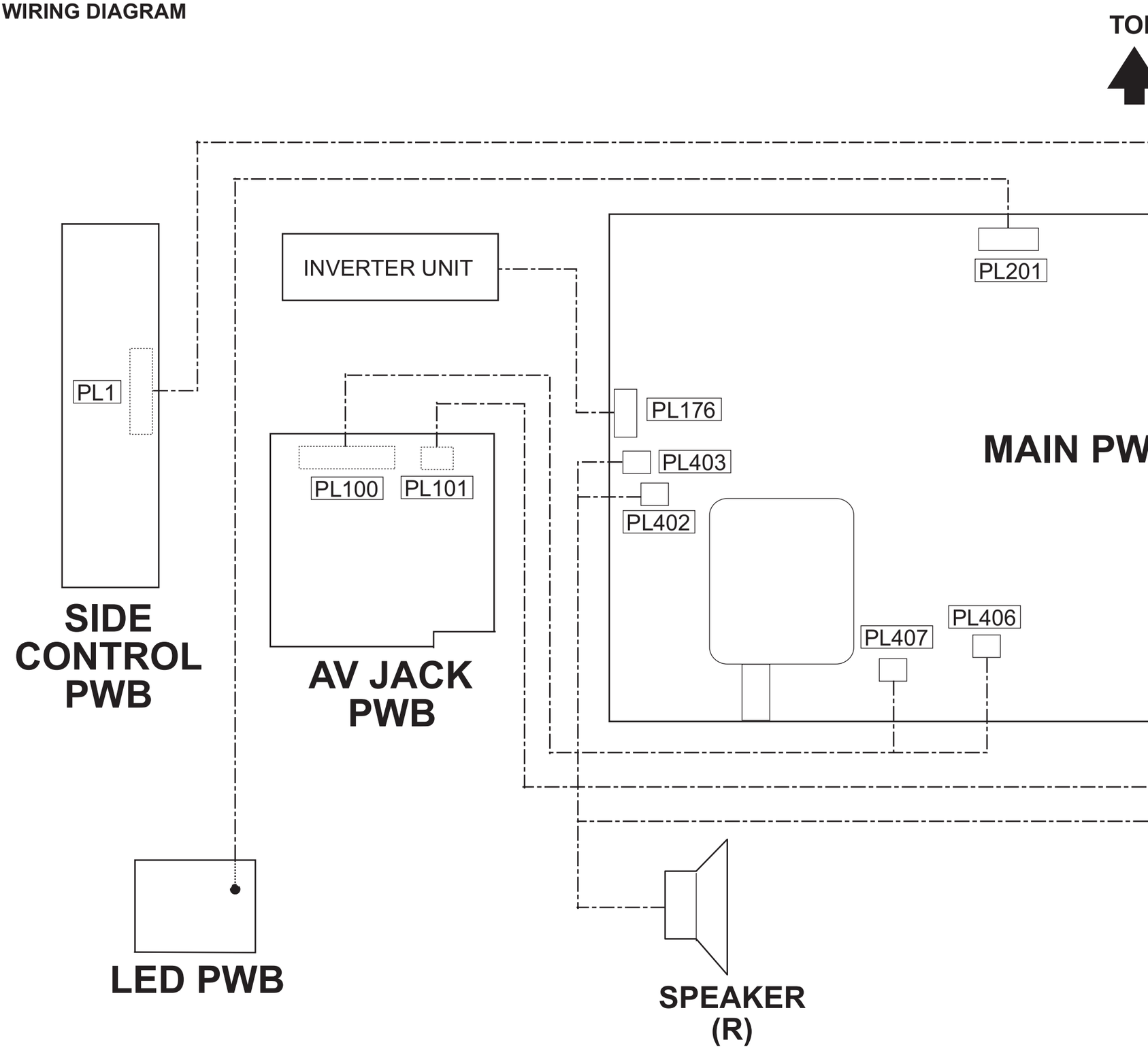
BLOCK DIAGRAM

MUX block diagram



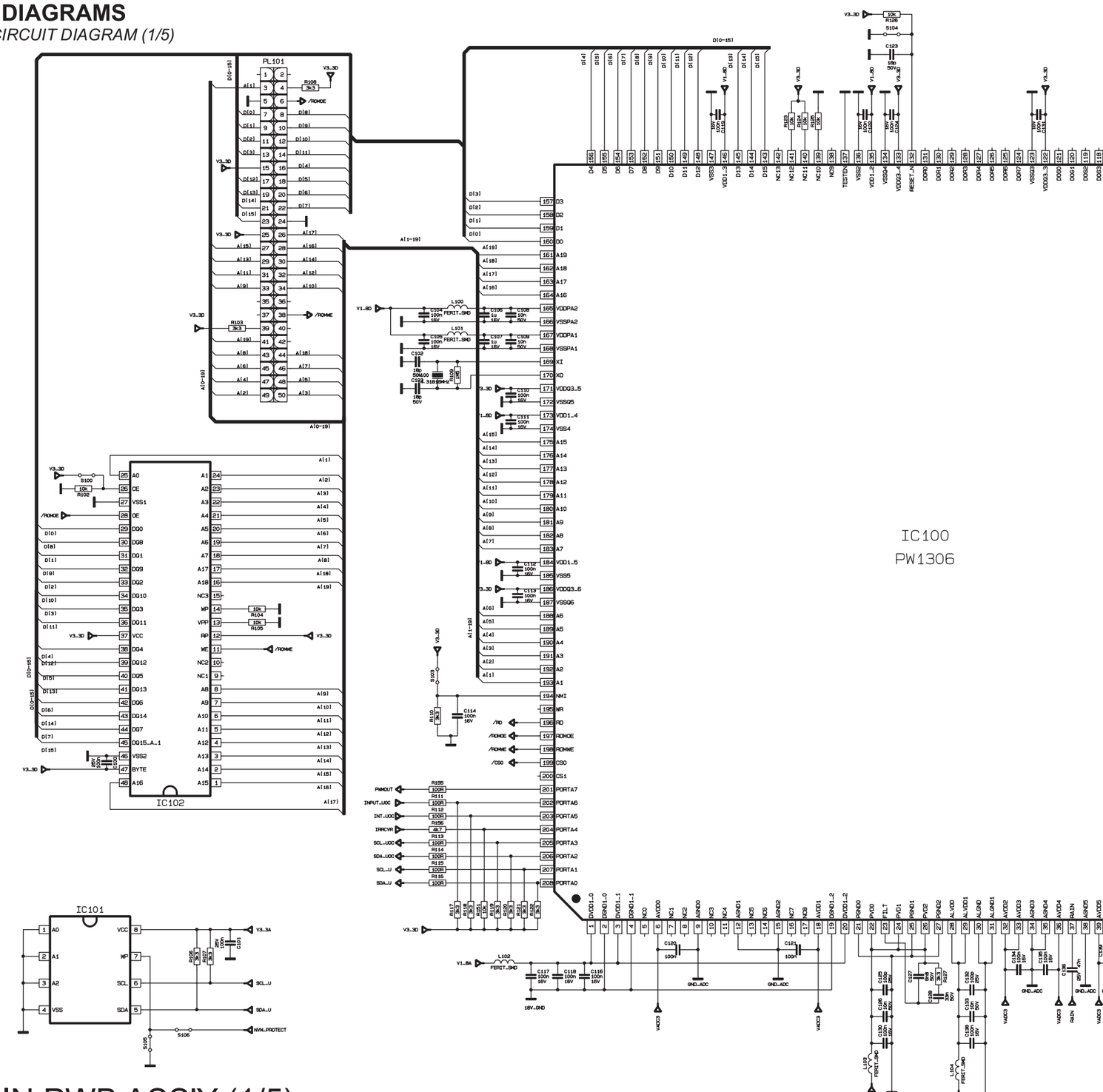


WIRING DIAGRAM



CIRCUIT DIAGRAMS

MAIN PWB CIRCUIT DIAGRAM (1/5)

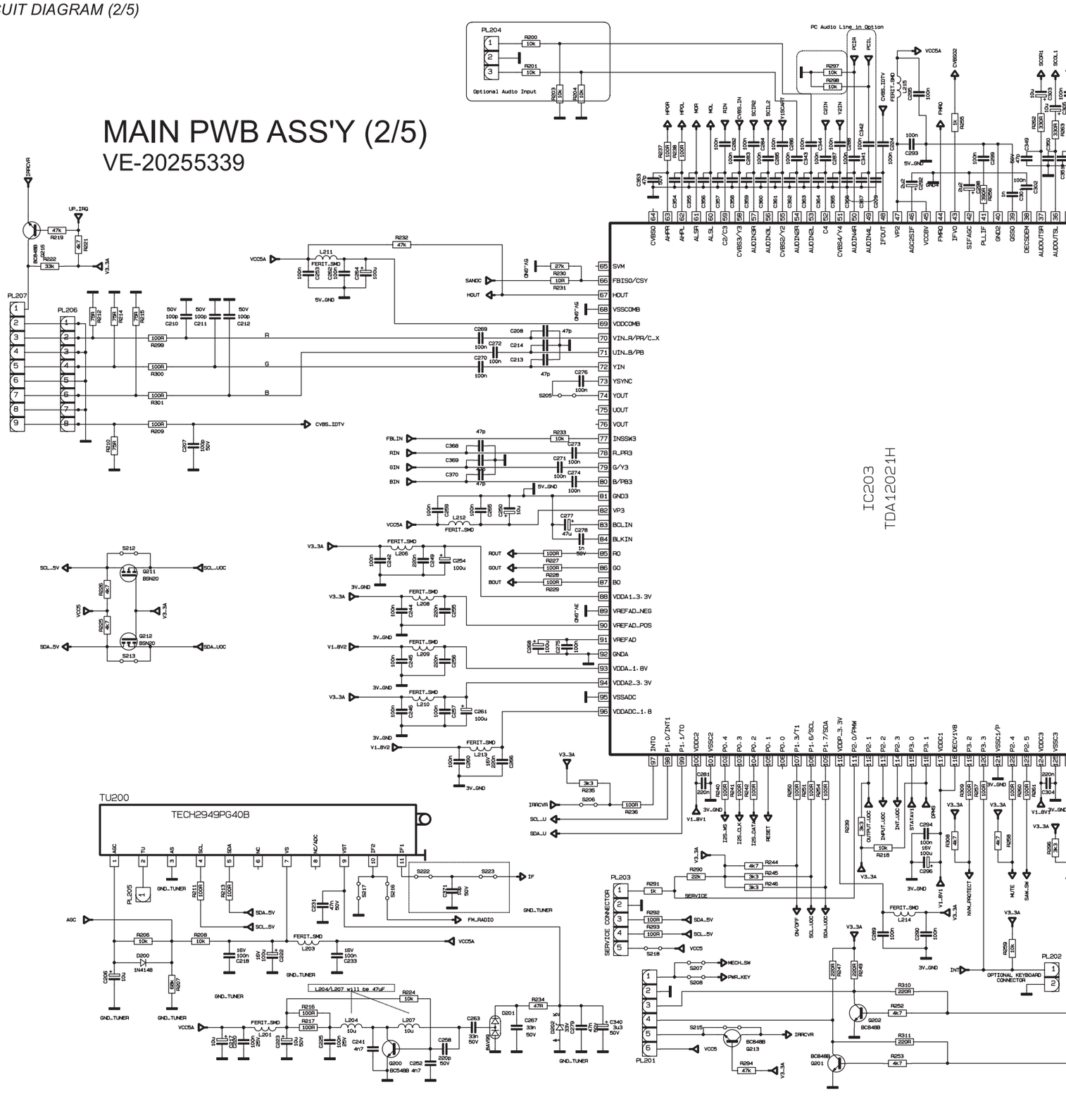


MAIN PWB ASS'Y (1/5)

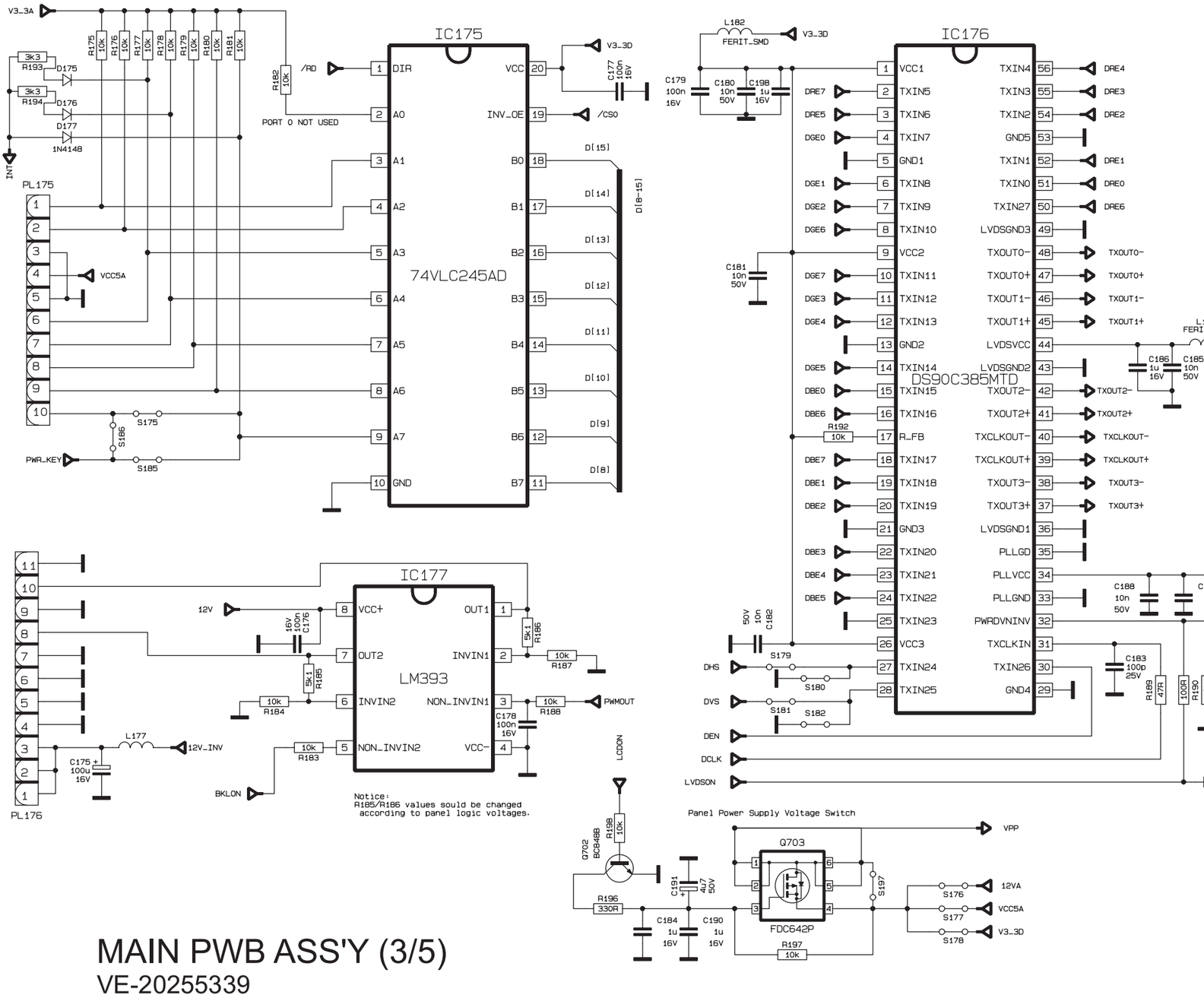
VE-20255339

NOTE : Refer to the part list for the part number of IC101 and IC102.

MAIN PWB CIRCUIT DIAGRAM (2/5)



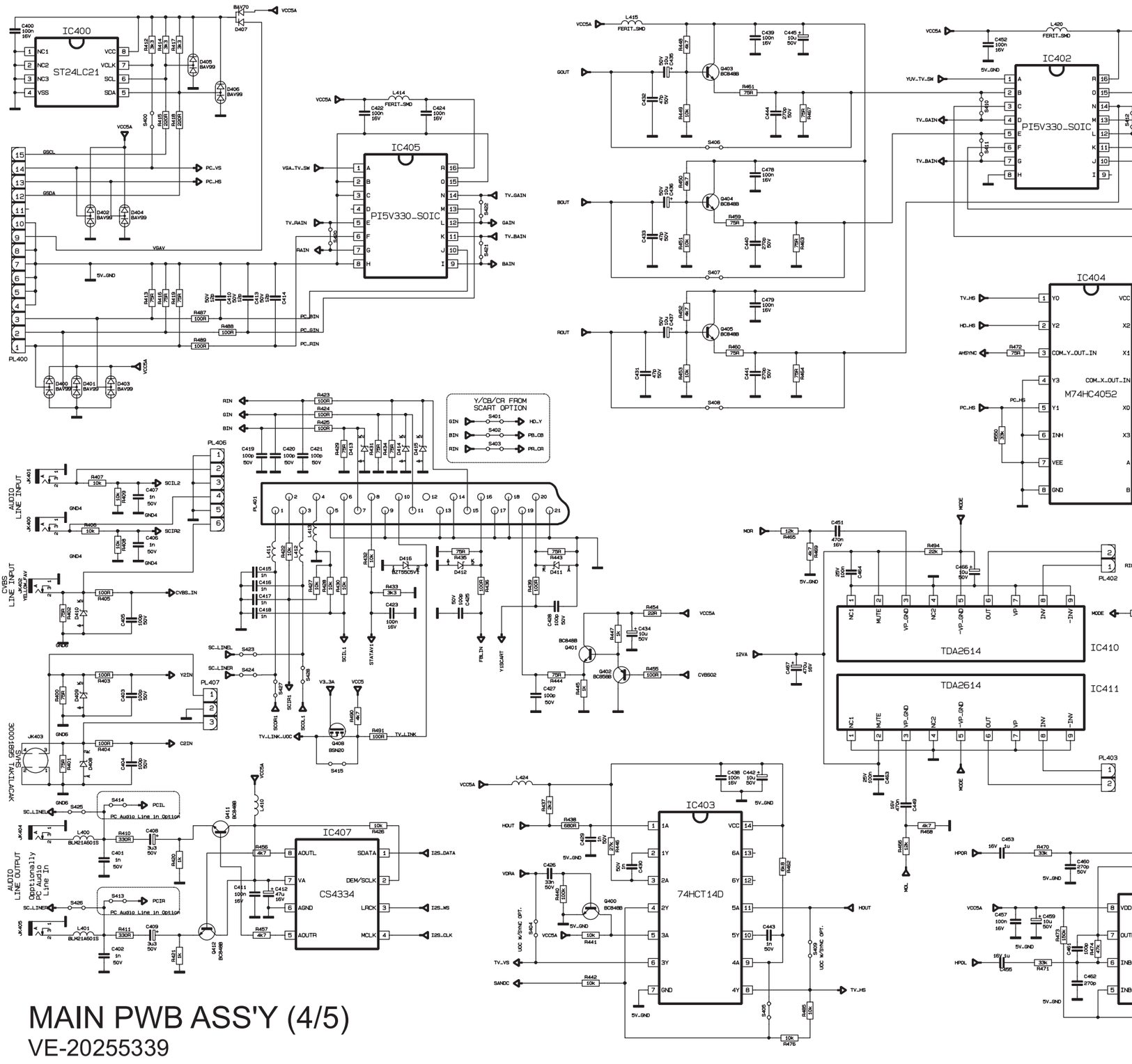
MAIN PWB CIRCUIT DIAGRAM (3/5)



MAIN PWB ASS'Y (3/5)

VE-20255339

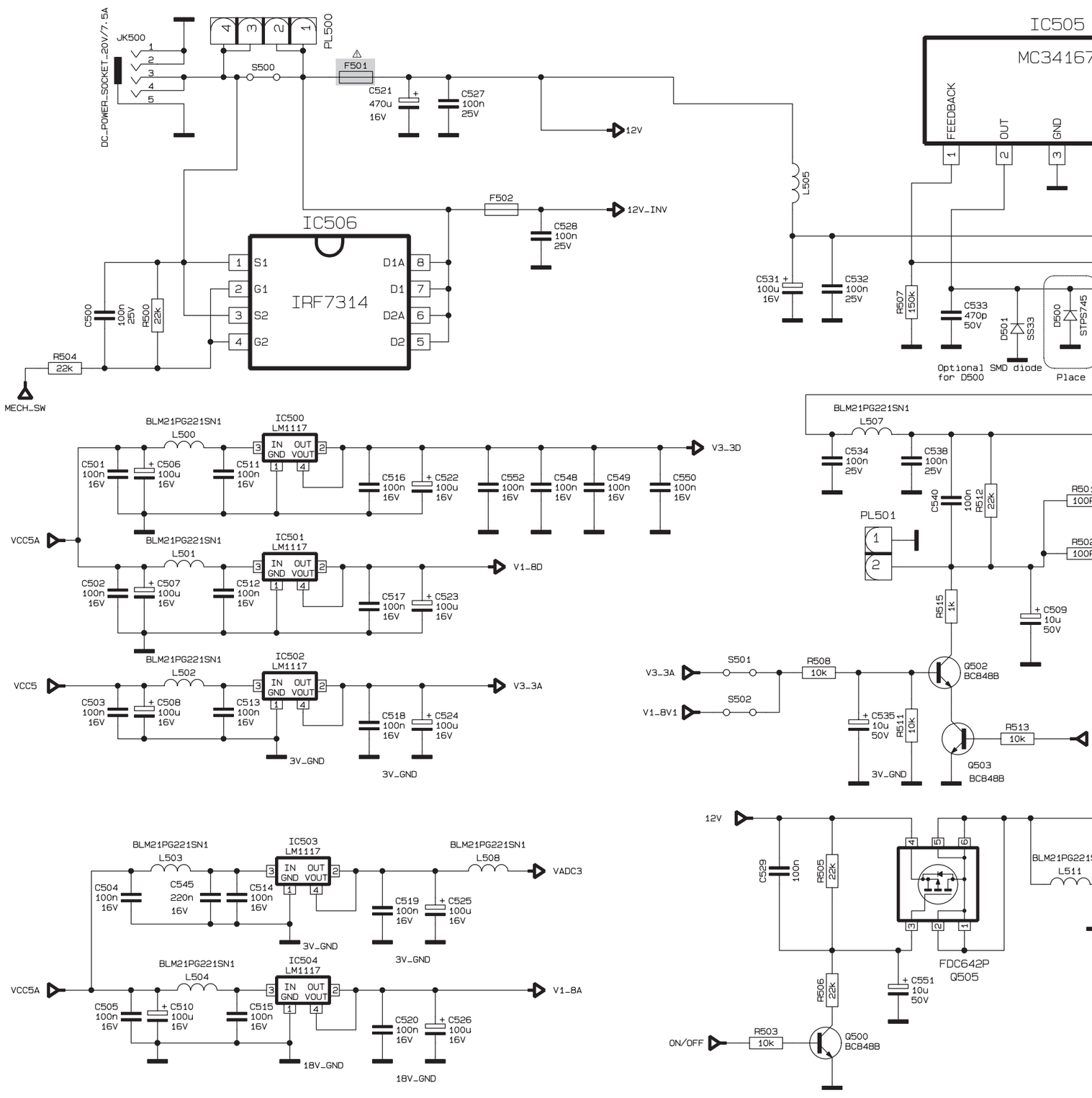
MAIN PWB CIRCUIT DIAGRAM (4/5)



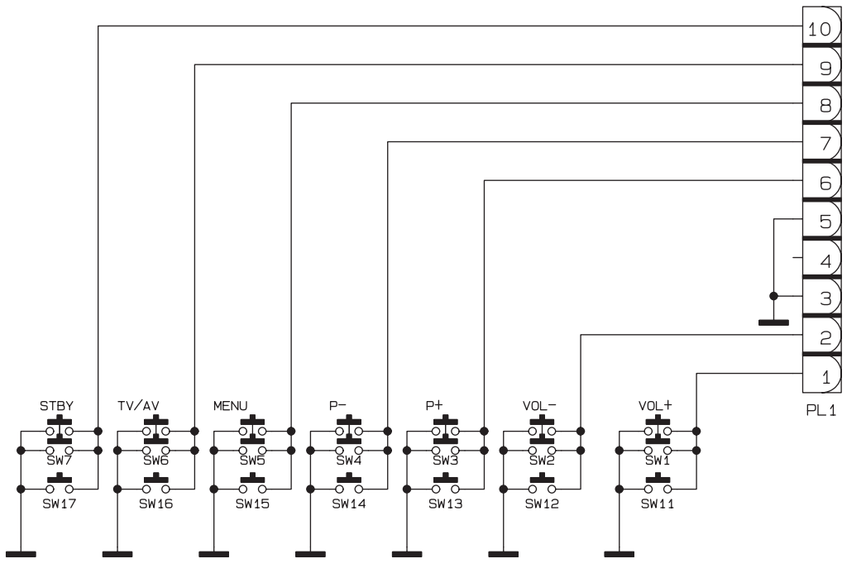
MAIN PWB ASS'Y (4/5)

VE-20255339

MAIN PWB CIRCUIT DIAGRAM (5/5)



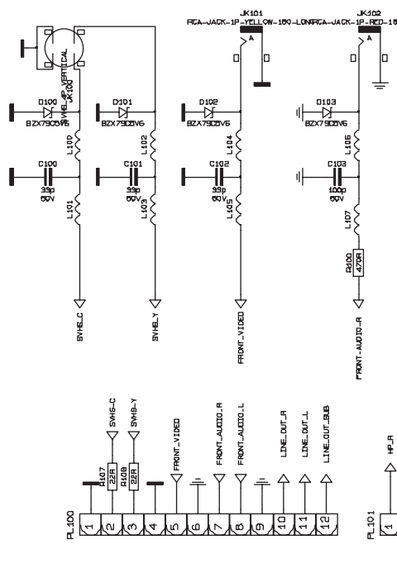
SIDE CONTROL PWB CIRCUIT DIAGRAM



SIDE CONTROL P.W.B ASS'Y
VE-20235650

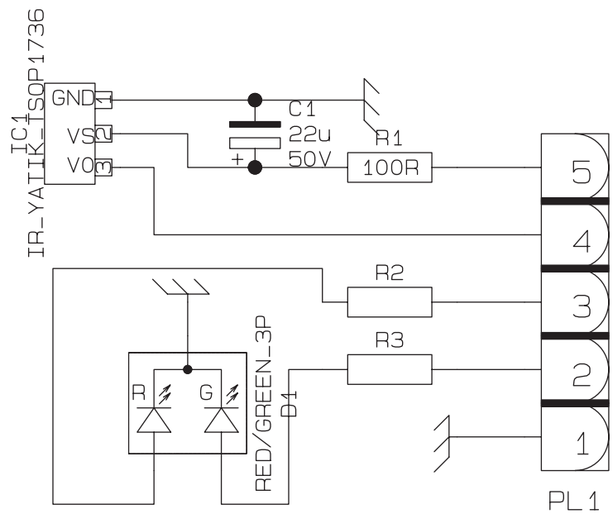
c17TK71_0302_1/1_0.0

AV JACK PWB CIRCUIT DIAGRAM



AV JACK P.W
VE-20239086

LED PWB CIRCUIT DIAGRAM

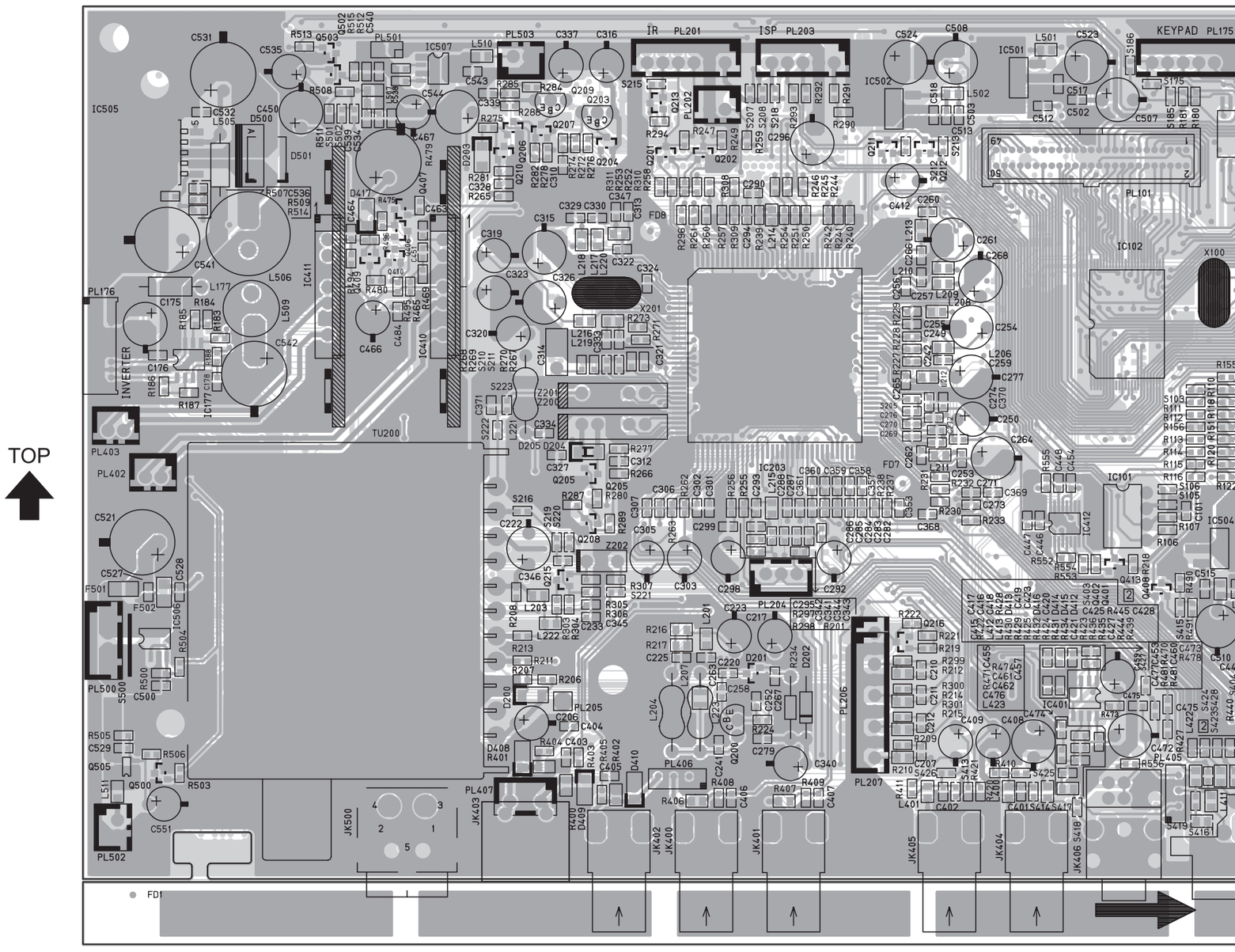


LED P.W.B ASS'Y
VE-20247127

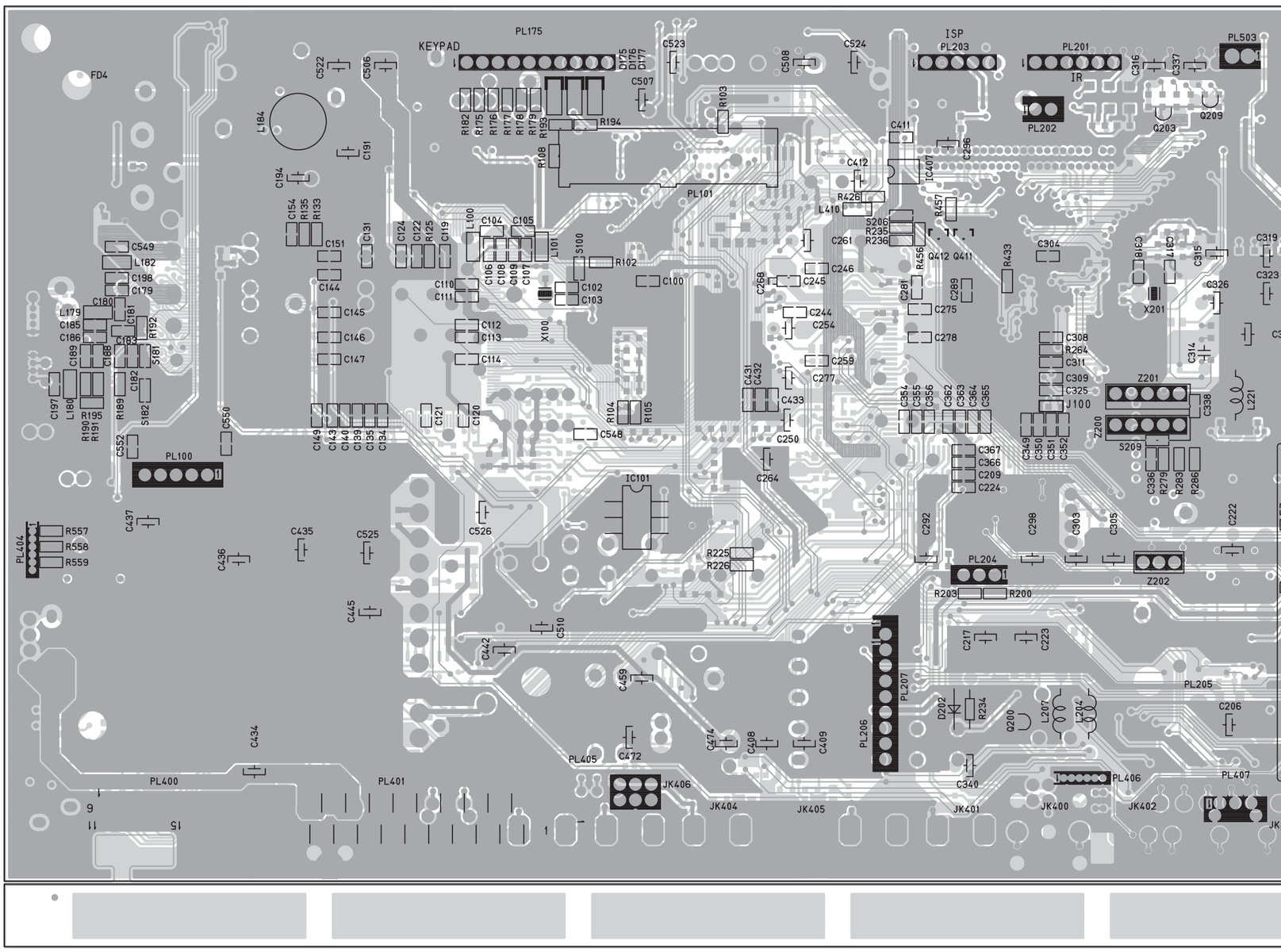
c17LD41_0302_1/1_0.0

PATTERN DIAGRAMS

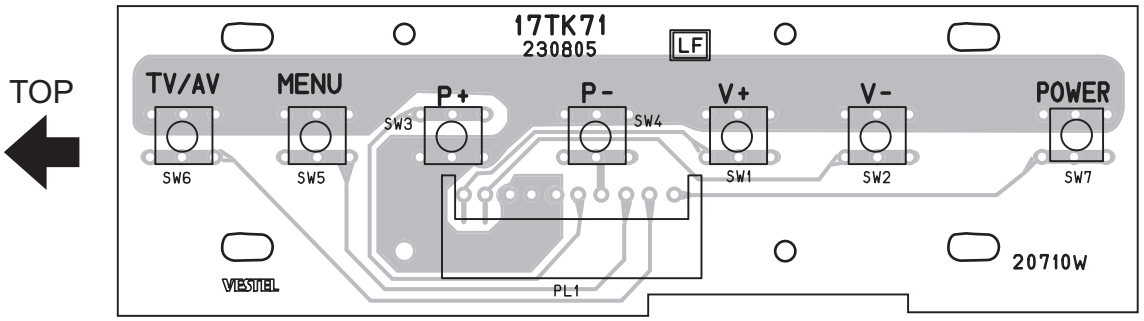
MAIN PWB PATTERN [SOLDER SIDE]



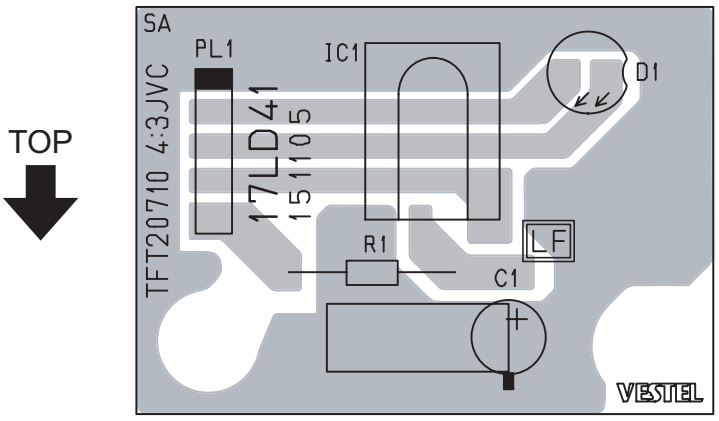
MAIN PWB PATTERN [PARTS SIDE]



SIDE CONTROL PWB PATTERN

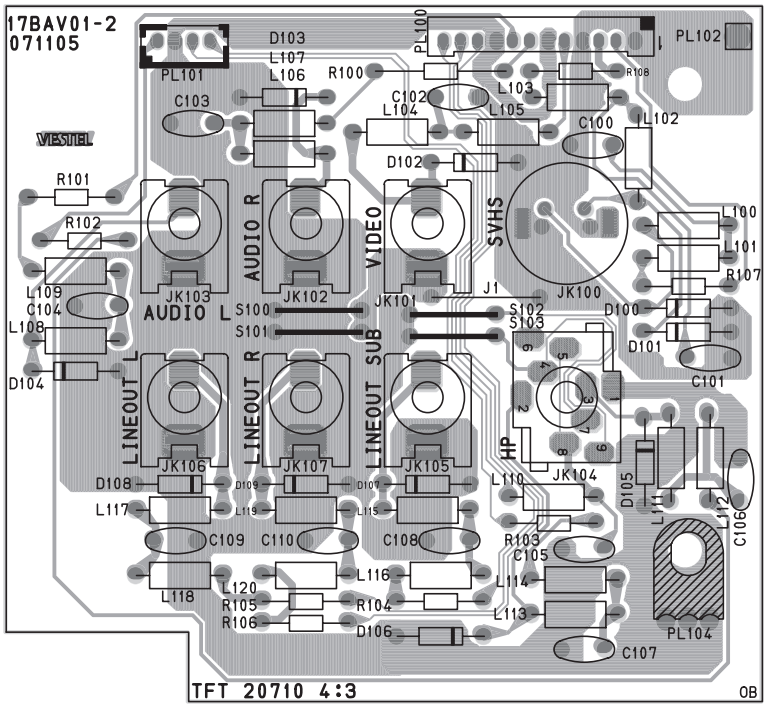


LED PWB PATTERN



AV JACK PWB PATTERN

TOP



JVC
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Flat Panel Display Category 12, 3-chome, Moriya-cho, Kanagawa-ku, Yokohama-city, Kanagawa-prefecture, 221-8528, Japan

(No.YA413)

Printed in Japan
VPT

PARTS LIST

CAUTION

- The parts identified by the ⚠ symbol are important for the safety . Whenever replacing these parts, be sure to use specified ones to secure the safety.
- The parts not indicated in this Parts List and those which are filled with lines --- in the Parts No. columns will not be supplied.
- P.W. BOARD Ass'y will not be supplied, but those which are filled with the Parts No. in the Parts No. columns will be supplied.

ABBREVIATIONS OF RESISTORS, CAPACITORS AND TOLERANCES

RESISTORS	
CR	Carbon Resistor
FR	Fusible Resistor
PR	Plate Resistor
VR	Variable Resistor
HV R	High Voltage Resistor
MF R	Metal Film Resistor
MG R	Metal Glazed Resistor
MP R	Metal Plate Resistor
OM R	Metal Oxide Film Resistor
CMF R	Coating Metal Film Resistor
UNF R	Non-Flammable Resistor
CH V R	Chip Variable Resistor
CH MG R	Chip Metal Glazed Resistor
COMP. R	Composition Resistor
LPTC R	Linear Positive Temperature Coefficient Resistor

CAPACITORS	
C CAP.	Ceramic Capacitor
E CAP.	Electrolytic Capacitor
M CAP.	Mylar Capacitor
CH CAP.	Chip Capacitor
HV CAP.	High Voltage Capacitor
MF CAP.	Metalized Film Capacitor
MM CAP.	Metalized Mylar Capacitor
MP CAP.	Metalized Polystyrol Capacitor
PP CAP.	Polypropylene Capacitor
PS CAP.	Polystyrol Capacitor
TF CAP.	Thin Film Capacitor
MPP CAP.	Metalized Polypropylene Capacitor
TAN. CAP.	Tantalum Capacitor
CH C CAP.	Chip Ceramic Capacitor
BP E CAP.	Bi-Polar Electrolytic Capacitor
CH AL E CAP.	Chip Aluminum Electrolytic Capacitor
CH AL BP CAP.	Chip Aluminum Bi-Polar Capacitor
CH TAN. E CAP.	Chip Tantalum Electrolytic Capacitor
CH AL BP E CAP.	Chip Tantalum Bi-Polar Electrolytic Capacitor

RESISTORS									
F	G	J	K	M	N	R	H	Z	P
±1%	±2%	±5%	±10%	±20%	±30%	+30% -10%	+50% -10%	+80% -20%	+100% -0%

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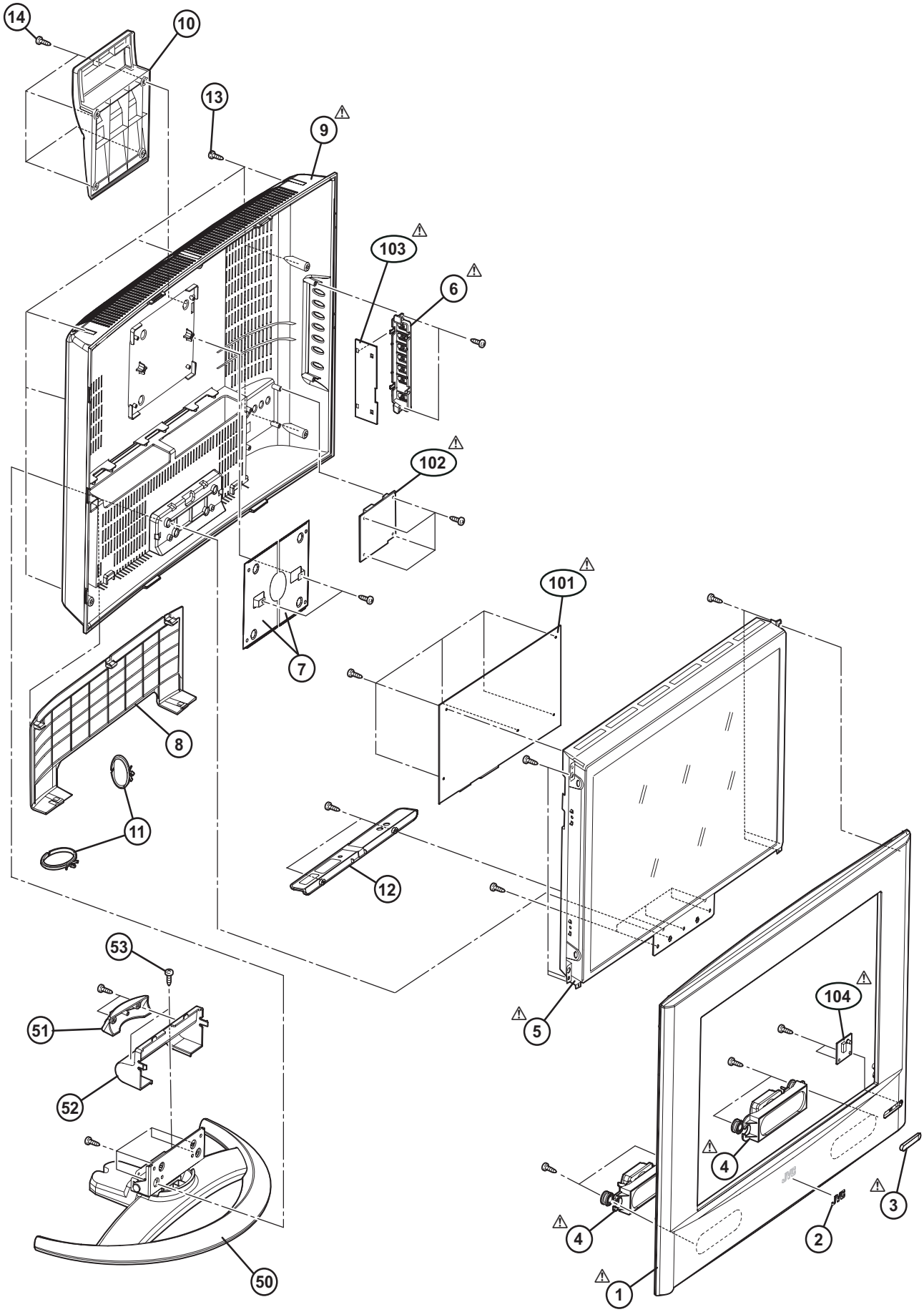
USING P.W. BOARD & REMOTE CONTROL UNIT

P.W.B ASS'Y name	P.W.B ASS'Y No.	
	LT-20J50SJ	LT-20J50SU
MAIN P.W.B	VE-20255339	←
AV JACK P.W.B	VE-20239086	←
SIDE CONTROL P.W.B	VE-20235650	←
LED P.W.B	VE-20247127	←
REMOTE CONTROL UNIT	VE-30039453	←

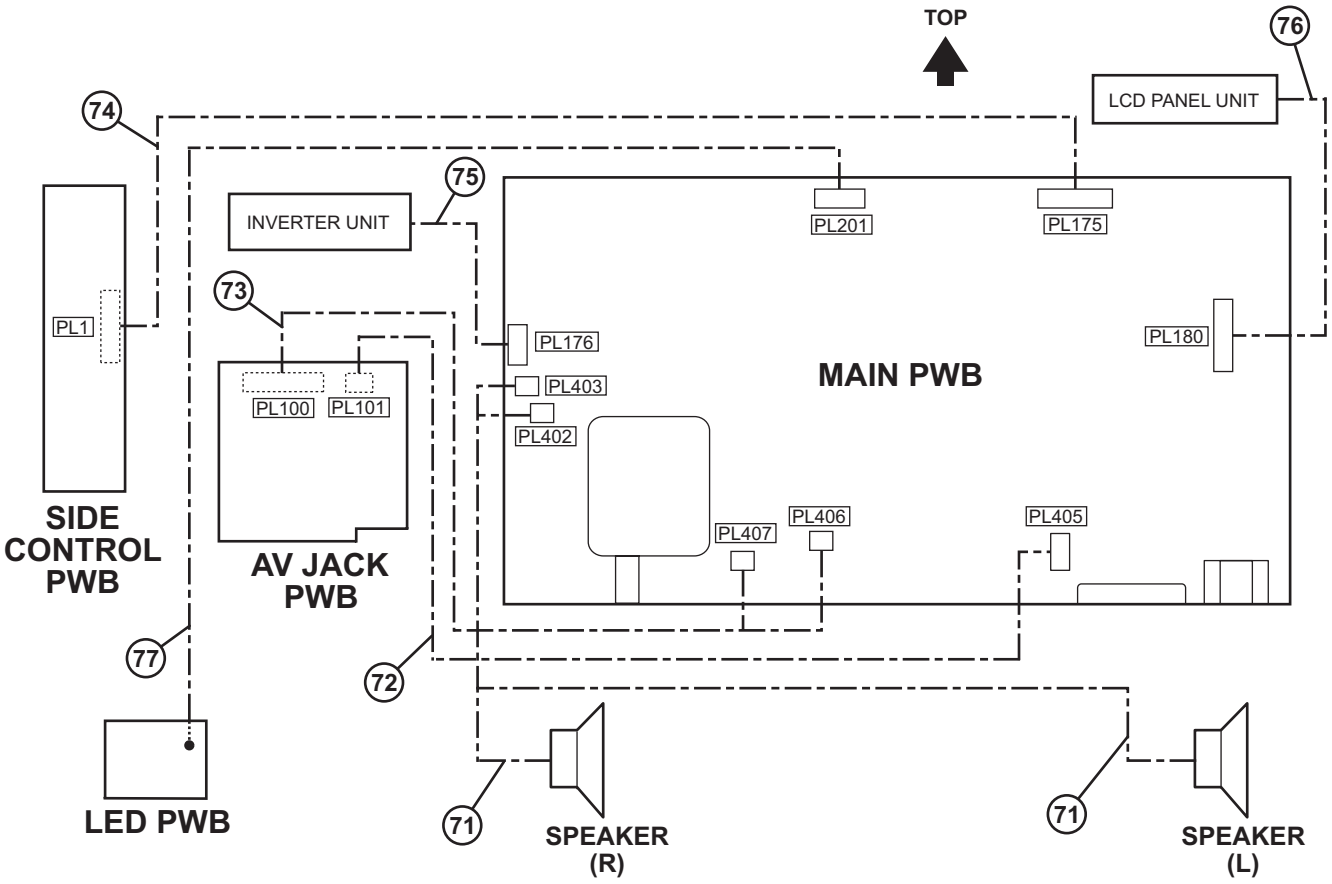
EXPLODED VIEW-1,2 PARTS LIST

⚠	Ref.No.	Part No.	Part Name	Description	Local
⚠	1	VE-20242970	FRONT COVER		
	2	VE-20181267	LOGO JVC		
⚠	3	VE-20233912	LENS		
⚠	4	VE-30034322	SPEAKER	16ohm 5W 3x10cm(x2)	
⚠	5	VE-30036578	LCD PANEL UNIT		
⚠	6	VE-20224812	FUNCTION BUTTON		
	7	VE-35012930	METAL HANG	(x2)	
	8	VE-20242976	BACK DOOR		
⚠	9	VE-20255273	BACK COVER		
	10	VE-20182430	HANDLE		
	11	VE-20176416	CABLE HOLDER	(x2)	
	12	VE-20246963	BRACKET SOCKET COVER		
	13	VE-35008875	SCREW	For BACK COVER(M4x16)(x7)	
	14	VE-35000185	SCREW	For HANDLE (M4x8)(x4)	
	50	VE-20255288	FOOT ASSEMBLY		
	51	VE-20224795	HINGE COVER		
	52	VE-20224794	FOOT TOP COVER		
	53	VE-35008090	SCREW	For FOOT TOP COVER (M3.5x12)(x2)	
	71	VE-30037904	E-HARNESS ASSY	MAIN PL402/403 - SPEAKER	
	72	VE-30042272	E-HARNESS ASSY	MAIN PL405 - AV JACK PL101	
	73	VE-30043854	E-HARNESS ASSY	MAIN PL406/407 - AV JACK PL100	
	74	VE-30045765	E-HARNESS ASSY	MAIN PL175 - SIDE CONTROL PL1	
	75	VE-30033316	E-HARNESS ASSY	MAIN PL176 - INVERTER	
	76	VE-30023877	DIGITAL CABLE	MAIN PL180 - LCD PANEL UNIT	
	77	VE-30037373	E-HARNESS ASSY	MAIN PL201 - LED	
⚠	101	VE-20255339	MAIN PWB		
⚠	102	VE-20239086	AV JACK PWB		
⚠	103	VE-20235650	SIDE CONTROL PWB		
⚠	104	VE-20247127	LED PWB		

EXPLODED VIEW-1



EXPLODED VIEW-2



PRINTED WIRING BOARD PARTS LIST

MAIN P.W. BOARD ASS'Y (VE-20255339)

⚠Ref No.	Part No.	Part Name	Description Local
IC100	VE-30027986	IC	
IC101	VE-20230390	IC	(SERVICE)
IC102	VE-LT-20J50	IC	(SERVICE)
IC175	VE-30029845	IC	
IC177	VE-30026744	IC	
IC203	VE-30028012	IC	
IC400	VE-30018006	IC	
IC401	VE-30010024	IC	
IC403	VE-30010807	IC	
IC404	VE-30010822	IC	
IC405	VE-30019372	IC	
IC410	VE-30031912	IC	
IC411	VE-30031912	IC	
IC500	VE-30033064	IC	
IC501	VE-30020607	IC	
IC502	VE-30033064	IC	
IC503	VE-30033064	IC	
IC504	VE-30020607	IC	
IC505	VE-30028675	IC	
IC507	VE-30018029	TRANSISTOR	
Q200	VE-30001454	TRANSISTOR	
Q203	VE-30001452	TRANSISTOR	
Q204	VE-30001457	TRANSISTOR	
Q205	VE-30001457	TRANSISTOR	
Q206	VE-30024724	TRANSISTOR	
Q207	VE-30001457	TRANSISTOR	
Q208	VE-30001457	TRANSISTOR	
Q209	VE-30001452	TRANSISTOR	
Q210	VE-30024724	TRANSISTOR	
Q211	VE-30029775	TRANSISTOR	
Q212	VE-30029775	TRANSISTOR	
Q213	VE-30001457	TRANSISTOR	
Q400	VE-30001457	TRANSISTOR	
Q401	VE-30001457	TRANSISTOR	
Q402	VE-30001458	TRANSISTOR	
Q403	VE-30001457	TRANSISTOR	
Q404	VE-30001457	TRANSISTOR	
Q405	VE-30001457	TRANSISTOR	
Q406	VE-30001457	TRANSISTOR	
Q407	VE-30001457	TRANSISTOR	
Q409	VE-30001458	TRANSISTOR	
Q410	VE-30001457	TRANSISTOR	
Q500	VE-30001457	TRANSISTOR	
Q502	VE-30001457	TRANSISTOR	
Q503	VE-30001457	TRANSISTOR	
Q505	VE-30018060	TRANSISTOR	
Q702	VE-30001457	TRANSISTOR	
Q703	VE-30018060	TRANSISTOR	
D175	VE-30001285	DIODE	
D176	VE-30001285	DIODE	
D177	VE-30001285	DIODE	
D200	VE-30001285	DIODE	
D201	VE-30007169	DIODE	
D202	VE-30001377	Z DIODE	
D203	VE-30001285	DIODE	
D204	VE-30012411	DIODE	
D400	VE-30007169	DIODE	
D401	VE-30007169	DIODE	
D402	VE-30007169	DIODE	
D403	VE-30007169	DIODE	
D404	VE-30007169	DIODE	
D405	VE-30007169	DIODE	
D406	VE-30007169	DIODE	
D407	VE-30019996	DIODE	
D408	VE-30038476	Z DIODE	
D409	VE-30038476	Z DIODE	
D410	VE-30038476	Z DIODE	
D411	VE-30038476	Z DIODE	
D412	VE-30038476	Z DIODE	
D413	VE-30038476	Z DIODE	
D414	VE-30038476	Z DIODE	
D415	VE-30038476	Z DIODE	
D417	VE-30001285	DIODE	
D500	VE-30001313	DIODE	
C100	VE-30012603	CAPACITOR	100nF 25V K
C101	VE-30012603	CAPACITOR	100nF 25V K
C102	VE-30012608	CAPACITOR	27pF 50V J
C103	VE-30012608	CAPACITOR	27pF 50V J
C104	VE-30016654	CAPACITOR	100nF 16V K
C105	VE-30016654	CAPACITOR	100nF 16V K
C106	VE-30020694	CAPACITOR	1uF 16V Z
C107	VE-30020694	CAPACITOR	1uF 16V Z
C108	VE-30012582	CAPACITOR	10nF 50V K
C109	VE-30012582	CAPACITOR	10nF 50V K
C110	VE-30016654	CAPACITOR	100nF 16V K
C111	VE-30016654	CAPACITOR	100nF 16V K
C112	VE-30016654	CAPACITOR	100nF 16V K
C113	VE-30016654	CAPACITOR	100nF 16V K
C114	VE-30016654	CAPACITOR	100nF 16V K
C116	VE-30016654	CAPACITOR	100nF 16V K
C117	VE-30016654	CAPACITOR	100nF 16V K
C118	VE-30016654	CAPACITOR	100nF 16V K
C119	VE-30016654	CAPACITOR	100nF 16V K
C120	VE-30016654	CAPACITOR	100nF 16V K
C121	VE-30016654	CAPACITOR	100nF 16V K
C122	VE-30016654	CAPACITOR	100nF 16V K
C123	VE-30012564	CAPACITOR	18pF 50V J
C124	VE-30016654	CAPACITOR	100nF 16V K
C125	VE-30012560	CAPACITOR	100pF 50V J
C126	VE-30012610	CAPACITOR	10nF 50V J
C127	VE-30037180	CAPACITOR	3.9nF 50V J
C128	VE-30037178	CAPACITOR	39nF 25 J
C130	VE-30016654	CAPACITOR	100nF 16V K
C131	VE-30016654	CAPACITOR	100nF 16V K
C132	VE-30012560	CAPACITOR	100pF 50V J
C133	VE-30012610	CAPACITOR	10nF 50V J
C134	VE-30016654	CAPACITOR	100nF 16V K
C135	VE-30016654	CAPACITOR	100nF 16V K
C136	VE-30012590	CAPACITOR	47nF 50V K
C138	VE-30016654	CAPACITOR	100nF 16V K
C139	VE-30016654	CAPACITOR	100nF 16V K
C140	VE-30016654	CAPACITOR	100nF 16V K
C141	VE-30012590	CAPACITOR	47nF 50V K
C142	VE-30012581	CAPACITOR	1nF 50V K
C143	VE-30016654	CAPACITOR	100nF 16V K
C144	VE-30016654	CAPACITOR	100nF 16V K
C145	VE-30016654	CAPACITOR	100nF 16V K
C146	VE-30016654	CAPACITOR	100nF 16V K
C147	VE-30016654	CAPACITOR	100nF 16V K
C148	VE-30012590	CAPACITOR	47nF 50V K
C149	VE-30016654	CAPACITOR	100nF 16V K
C151	VE-30016654	CAPACITOR	100nF 16V K
C154	VE-30012573	CAPACITOR	47pF 50V J
C156	VE-30031604	CAPACITOR	10pF 50V F
C157	VE-30031604	CAPACITOR	10pF 50V F
C158	VE-30031604	CAPACITOR	10pF 50V F
C159	VE-30031604	CAPACITOR	10pF 50V F
C160	VE-30031604	CAPACITOR	10pF 50V F
C161	VE-30031604	CAPACITOR	10pF 50V F
C176	VE-30016654	CAPACITOR	100nF 16V K
C177	VE-30016654	CAPACITOR	100nF 16V K
C178	VE-30016654	CAPACITOR	100nF 16V K
C192	VE-30012582	CAPACITOR	10nF 50V K
C193	VE-30012603	CAPACITOR	100nF 25V K
C194	VE-30000353	E CAPACITOR	100uF 25V M
C195	VE-30012582	CAPACITOR	10nF 50V K
C199	VE-30012603	CAPACITOR	100nF 25V K
C206	VE-30000400	E CAPACITOR	47uF 50V M
C217	VE-30000345	E CAPACITOR	10uF 50V M
C218	VE-30016654	CAPACITOR	100nF 16V K
C220	VE-30012603	CAPACITOR	100nF 25V K
C222	VE-30000352	E CAPACITOR	100uF 16V M
C223	VE-30000345	E CAPACITOR	10uF 50V M
C225	VE-30012603	CAPACITOR	100nF 25V K
C231	VE-30012590	CAPACITOR	47nF 50V K
C233	VE-30016654	CAPACITOR	100nF 16V K
C241	VE-30012589	CAPACITOR	4.7nF 50V K
C242	VE-30016654	CAPACITOR	100nF 16V K
C244	VE-30016654	CAPACITOR	100nF 16V K
C245	VE-30016654	CAPACITOR	100nF 16V K
C246	VE-30016654	CAPACITOR	100nF 16V K
C249	VE-30016126	CAPACITOR	220nF 16V K
C250	VE-30000345	E CAPACITOR	10uF 50V M
C252	VE-30012589	CAPACITOR	4.7nF 50V K
C253	VE-30016654	CAPACITOR	100nF 16V K
C254	VE-30000352	E CAPACITOR	100uF 16V M
C255	VE-30016126	CAPACITOR	220nF 16V K
C256	VE-30016126	CAPACITOR	220nF 16V K
C257	VE-30016654	CAPACITOR	100nF 16V K
C258	VE-30012568	CAPACITOR	270pF 50V J
C259	VE-30016654	CAPACITOR	100nF 16V K
C260	VE-30016654	CAPACITOR	100nF 16V K
C261	VE-30000352	E CAPACITOR	100uF 16V M
C262	VE-30016654	CAPACITOR	100nF 16V K
C263	VE-30012588	CAPACITOR	33nF 50V K
C264	VE-30000352	E CAPACITOR	100uF 16V M
C265	VE-30016654	CAPACITOR	100nF 16V K
C266	VE-30016126	CAPACITOR	220nF 16V K
C267	VE-30012588	CAPACITOR	33nF 50V K

⚠Ref No.	Part No.	Part Name	Description Local
C268	VE-30000352	E CAPACITOR	100uF 16V M
C271	VE-30016654	CAPACITOR	100nF 16V K
C273	VE-30016654	CAPACITOR	100nF 16V K
C274	VE-30016654	CAPACITOR	100nF 16V K
C275	VE-30016654	CAPACITOR	100nF 16V K
C276	VE-30016654	CAPACITOR	100nF 16V K
C277	VE-30000400	E CAPACITOR	47uF 50V M
C278	VE-30012581	CAPACITOR	1nF 50V K
C279	VE-30012590	CAPACITOR	47nF 50V K
C281	VE-30016126	CAPACITOR	220nF 16V K
C282	VE-30016654	CAPACITOR	100nF 16V K
C283	VE-30016654	CAPACITOR	100nF 16V K
C284	VE-30016126	CAPACITOR	220nF 16V K
C285	VE-30016126	CAPACITOR	220nF 16V K
C286	VE-30016654	CAPACITOR	100nF 16V K
C287	VE-30016654	CAPACITOR	100nF 16V K
C288	VE-30016654	CAPACITOR	100nF 16V K
C289	VE-30016654	CAPACITOR	100nF 16V K
C290	VE-30016654	CAPACITOR	100nF 16V K
C292	VE-30000384	E CAPACITOR	2.2uF 50V M
C293	VE-30016654	CAPACITOR	100nF 16V K
C294	VE-30016654	CAPACITOR	100nF 16V K
C295	VE-30016654	CAPACITOR	100nF 16V K
C296	VE-30000352	E CAPACITOR	100uF 16V M
C298	VE-30000384	E CAPACITOR	2.2uF 50V M
C299	VE-30016654	CAPACITOR	100nF 16V K
C301	VE-30012581	CAPACITOR	1nF 50V K
C302	VE-30016654	CAPACITOR	100nF 16V K
C303	VE-30000345	E CAPACITOR	10uF 50V M
C304	VE-30016126	CAPACITOR	220nF 16V K
C305	VE-30000345	E CAPACITOR	10uF 50V M
C306	VE-30016126	CAPACITOR	220nF 16V K
C307	VE-30016126	CAPACITOR	220nF 16V K
C308	VE-30016654	CAPACITOR	100nF 16V K
C309	VE-30016126	CAPACITOR	220nF 16V K
C310	VE-30016654	CAPACITOR	100nF 16V K
C311	VE-30012592	CAPACITOR	6.8nF 50V K
C312	VE-30016654	CAPACITOR	100nF 16V K
C313	VE-30016126	CAPACITOR	220nF 16V K
C314	VE-30000092	CAPACITOR	220nF 63V J
C315	VE-30000352	E CAPACITOR	100uF 16V M
C316	VE-30000345	E CAPACITOR	10uF 50V M
C317	VE-30016127	CAPACITOR	6.8pF 50V D
C318	VE-30016127	CAPACITOR	6.8pF 50V D
C320	VE-30000345	E CAPACITOR	10uF 50V M
C321	VE-30016654	CAPACITOR	100nF 16V K
C322	VE-30016654	CAPACITOR	100nF 16V K
C323	VE-30000362	E CAPACITOR	1uF 50V M
C324	VE-30016654	CAPACITOR	100nF 16V K
C325	VE-30016654	CAPACITOR	100nF 16V K
C326	VE-30000352	E CAPACITOR	100uF 16V M
C327	VE-30016654	CAPACITOR	100nF 16V K
C328	VE-30016654	CAPACITOR	100nF 16V K
C329	VE-30016654	CAPACITOR	100nF 16V K
C330	VE-30016654	CAPACITOR	100nF 16V K
C333	VE-30016654	CAPACITOR	100nF 16V K
C334	VE-30016654	CAPACITOR	100nF 16V K
C336	VE-30020694	CAPACITOR	1uF 16V Z
C337	VE-30000345	E CAPACITOR	10uF 50V M
C338	VE-30012582	CAPACITOR	10nF 50V K
C339	VE-30016654	CAPACITOR	100nF 16V K
C340	VE-30000393	E CAPACITOR	3.3uF 50V M
C341	VE-30016654	CAPACITOR	100nF 16V K
C342	VE-30016654	CAPACITOR	100nF 16V K
C347	VE-30016654	CAPACITOR	100nF 16V K
C349	VE-30012573	CAPACITOR	47pF 50V J
C350	VE-30012573	CAPACITOR	47pF 50V J
C351	VE-30012573	CAPACITOR	47pF 50V J
C352	VE-30012573	CAPACITOR	47pF 50V J
C353	VE-30012573	CAPACITOR	47pF 50V J
C354	VE-30012573	CAPACITOR	47pF 50V J
C355	VE-30012573	CAPACITOR	47pF 50V J
C356	VE-30012573	CAPACITOR	47pF 50V J
C357	VE-30012573	CAPACITOR	47pF 50V J
C358	VE-30012573	CAPACITOR	47pF 50V J
C359	VE-30012573	CAPACITOR	47pF 50V J
C360	VE-30012573	CAPACITOR	47pF 50V J
C361	VE-30012573	CAPACITOR	47pF 50V J
C364	VE-30012573	CAPACITOR	47pF 50V J
C365	VE-30012573	CAPACITOR	47pF 50V J
C366	VE-30012573	CAPACITOR	47pF 50V J
C367	VE-30012573	CAPACITOR	47pF 50V J
C368	VE-30012573	CAPACITOR	47pF 50V J
C369	VE-30012573	CAPACITOR	47pF 50V J
C370	VE-30012573	CAPACITOR	47pF 50V J
C400	VE-30016654	CAPACITOR	100nF 16V K
C403	VE-30012560	CAPACITOR	100pF 50V J
C404	VE-30012560	CAPACITOR	100pF 50V J
C405	VE-30012560	CAPACITOR	100pF 50V J
C406	VE-30012581	CAPACITOR	1nF 50V K
C407	VE-30012581	CAPACITOR	1nF 50V K
C410	VE-30012559	CAPACITOR	10pF 50V D
C413	VE-30012559	CAPACITOR	10pF 50V D
C414	VE-30012559	CAPACITOR	10pF 50V D
C415	VE-30012581	CAPACITOR	1nF 50V K
C416	VE-30012581	CAPACITOR	1nF 50V K
C417	VE-30012581	CAPACITOR	1nF 50V K
C418	VE-30012581	CAPACITOR	1nF 50V K
C419	VE-30012560	CAPACITOR	100pF 50V J
C420	VE-30012560	CAPACITOR	100pF 50V J
C421	VE-30012560	CAPACITOR	100pF 50V J
C422	VE-30016654	CAPACITOR	100nF 16V K
C423	VE-30016654	CAPACITOR	100nF 16V K
C424	VE-30016654	CAPACITOR	100nF 16V K
C425	VE-30012560	CAPACITOR	100pF 50V J
C426	VE-30012588	CAPACITOR	33nF 50V K
C427	VE-30012560	CAPACITOR	100pF 50V J
C428	VE-30012560	CAPACITOR	100pF 50V J
C429	VE-30012581	CAPACITOR	1nF 50V K
C430	VE-30012581	CAPACITOR	1nF 50V K
C431	VE-30012573	CAPACITOR	47pF 50V J
C432	VE-30012573	CAPACITOR	47pF 50V J
C433	VE-30012573	CAPACITOR	47pF 50V J
C434	VE-30000345	E CAPACITOR	10uF 50V M
C435	VE-30000345	E CAPACITOR	10uF 50V M
C436	VE-30000345	E CAPACITOR	10uF 50V M
C437	VE-30000345	E CAPACITOR	10uF 50V M
C438	VE-30016654	CAPACITOR	100nF 16V K
C439	VE-30016654	CAPACITOR	100nF 16V K
C440	VE-30012568	CAPACITOR	270pF 50V J
C441	VE-30012568	CAPACITOR	270pF 50V J
C442	VE-30000345	E CAPACITOR	10uF 50V M
C443	VE-30012581	CAPACITOR	1nF 50V K
C444	VE-30012568	CAPACITOR	270pF 50V J
C445	VE-30000352	E CAPACITOR	100uF 16V M
C449	VE-30024768	CAPACITOR	470nF 16V Z
C450	VE-30034074	E CAPACITOR	100uF 25V M
C451	VE-30024768	CAPACITOR	470nF 16V Z
C453	VE-30020694	CAPACITOR	1uF 16V Z
C455	VE-30020694	CAPACITOR	1uF 16V Z
C457	VE-30016654	CAPACITOR	100nF 16V K
C459	VE-30000345	E CAPACITOR	10uF 50V M
C460	VE-30012568	CAPACITOR	270pF 50V J
C461	VE-30012560	CAPACITOR	100pF 50V J
C462	VE-30012568	CAPACITOR	270pF 50V J
C463	VE-30012603	CAPACITOR	100nF 25V K
C464	VE-30012603	CAPACITOR	100nF 25V K
C466	VE-30016085	E CAPACITOR	10uF 63V
C467	VE-30000407	E CAPACITOR	470uF 16V M
C471	VE-30016654	CAPACITOR	100nF 16V K
C472	VE-30000352	E CAPACITOR	100uF 16V M
C473	VE-30012560	CAPACITOR	100pF 50V J
C474	VE-30000352	E CAPACITOR	100uF 16V M
C475	VE-30012589	CAPACITOR	4.7nF 50V K
C476	VE-30012589	CAPACITOR	4.7nF 50V K
C477	VE-30020694	CAPACITOR	1uF 16V Z
C478	VE-30016654	CAPACITOR	100nF 16V K
C479	VE-30016654	CAPACITOR	100nF 16V K
C484	VE-30012509	RESISTOR	1/16W 100K J
C501	VE-30016654	CAPACITOR	100nF 16V K
C502	VE-30016654	CAPACITOR	100nF 16V K
C503	VE-30016654	CAPACITOR	100nF 16V K
C504	VE-30016654	CAPACITOR	100nF 16V K
C505	VE-30016654	CAPACITOR	100nF 16V K
C506	VE-30000352	E CAPACITOR	100uF 16V M
C507	VE-30000352	E CAPACITOR	100uF 16V M
C508	VE-30000352	E CAPACITOR	100uF 16V M
C510	VE-30000352	E CAPACITOR	100uF 16V M
C511	VE-30016654	CAPACITOR	100nF 16V K
C512	VE-30016654	CAPACITOR	100nF 16V K
C513	VE-30016654	CAPACITOR	100nF 16V K
C514	VE-30016654	CAPACITOR	100nF 16V K
C515	VE-30016654	CAPACITOR	100nF 16V K
C516	VE-30016654	CAPACITOR	100nF 16V K
C517	VE-30016654	CAPACITOR	100nF 16V K
C518	VE-30016654	CAPACITOR	100nF 16V K
C519	VE-30016654	CAPACITOR	100nF 16V K
C520	VE-30016654	CAPACITOR	100nF 16V K
C521	VE-30000407	E CAPACITOR	470uF 16V M
C522	VE-30000352	E CAPACITOR	100uF 16V M
C523	VE-30000352	E CAPACITOR	100uF 16V M
C524	VE-30000352	E CAPACITOR	100uF 16V M
C525	VE-30000352	E CAPACITOR	100uF 16V M
C526	VE-30000352	E CAPACITOR	100uF 16V M
C527	VE-30012603	CAPACITOR	100nF 25V K
C529	VE-30016654	CAPACITOR	100nF 16V K
C531	VE-30018901	E CAPACITOR	100uF 50V M
C532	VE-30012603	CAPACITOR	100nF 25V K
C533	VE-30012574	CAPACITOR	470pF 50V J
C534	VE-30012603	CAPACITOR	100nF 25V K

⚠Ref No.	Part No.	Part Name	Description Local
C535	VE-30016085	E CAPACITOR	10uF 63V
C536	VE-30016654	CAPACITOR	100nF 16V K
C537	VE-30016654	CAPACITOR	100nF 16V K
C538	VE-30012603	CAPACITOR	100nF 25V K
C539	VE-30016654	CAPACITOR	100nF 16V K
C540	VE-30016654	CAPACITOR	100nF 16V K
C541	VE-30005819	E CAPACITOR	1000uF 16V M
C542	VE-30031594	E CAPACITOR	2200uF 10V M
C543	VE-30016654	CAPACITOR	100nF 16V K
C544	VE-30000352	E CAPACITOR	100uF 16V M
C545	VE-30016126	CAPACITOR	220nF 16V K
R100	VE-30012510	RESISTOR	1/16W 100R J
R101	VE-30012510	RESISTOR	1/16W 100R J
R102	VE-30012641	RESISTOR	1/16W 10K J
R103	VE-30012677	RESISTOR	1/16W 3.3K J
R104	VE-30012641	RESISTOR	1/16W 10K J
R105	VE-30012641	RESISTOR	1/16W 10K J
R106	VE-30012677	RESISTOR	1/16W 3.3K J
R107	VE-30012677	RESISTOR	1/16W 3.3K J
R108	VE-30012677	RESISTOR	1/16W 3.3K J
R109	VE-30012507	RESISTOR	1/16W 1.5M J
R110	VE-30012677	RESISTOR	1/16W 3.3K J
R111	VE-30012510	RESISTOR	1/16W 100R J
R112	VE-30012510	RESISTOR	1/16W 100R J
R113	VE-30012510	RESISTOR	1/16W 100R J
R114	VE-30012510	RESISTOR	1/16W 100R J
R115	VE-30012510	RESISTOR	1/16W 100R J
R116	VE-30012510	RESISTOR	1/16W 100R J
R117	VE-30012677	RESISTOR	1/16W 3.3K J
R118	VE-30012677	RESISTOR	1/16W 3.3K J
R123	VE-30012641	RESISTOR	1/16W 10K J
R124	VE-30012641	RESISTOR	1/16W 10K J
R125	VE-30012641	RESISTOR	1/16W 10K J
R126	VE-30012641	RESISTOR	1/16W 10K J
R127	VE-30012677	RESISTOR	1/16W 3.3K J
R135	VE-30020529	FERRITE	
R136	VE-30012677	RESISTOR	1/16W 3.3K J
R137	VE-30012677	RESISTOR	1/16W 3.3K J
R138	VE-30012677	RESISTOR	1/16W 3.3K J
R142	VE-30030692	FERRITE NET	
R143	VE-30030692	FERRITE NET	
R144	VE-30030692	FERRITE NET	
R145	VE-30030692	FERRITE NET	
R146	VE-30030692	FERRITE NET	
R147	VE-30030692	FERRITE NET	
R149	VE-30012510	RESISTOR	1/16W 100R J
R152	VE-30012510	RESISTOR	1/16W 100R J
R153	VE-30012510	RESISTOR	1/16W 100R J
R154	VE-30012510	RESISTOR	1/16W 100R J
R155	VE-30012510	RESISTOR	1/16W 100R J
R156	VE-30012692	RESISTOR	1/16W 4.7K J
R175	VE-30012641	RESISTOR	1/16W 10K J
R176	VE-30012641	RESISTOR	1/16W 10K J
R177	VE-30012641	RESISTOR	1/16W 10K J
R178	VE-30012641	RESISTOR	1/16W 10K J
R179	VE-30012641	RESISTOR	1/16W 10K J
R180	VE-30012641	RESISTOR	1/16W 10K J
R181	VE-30012641	RESISTOR	1/16W 10K J
R182	VE-30012641	RESISTOR	1/16W 10K J
R183	VE-30012641	RESISTOR	1/16W 10K J
R184	VE-30012641	RESISTOR	1/16W 10K J
R185	VE-30012510	RESISTOR	1/16W 100R J
R186	VE-30012510	RESISTOR	1/16W 100R J
R187	VE-30012641	RESISTOR	1/16W 10K J
R188	VE-30012641	RESISTOR	1/16W 10K J
R192	VE-30012641	RESISTOR	1/16W 10K J
R196	VE-30012677	RESISTOR	1/16W 3.3K J
R197	VE-30012669	RESISTOR	1/16W 22K J
R198	VE-30012641	RESISTOR	1/16W 10K J
R206	VE-30012669	RESISTOR	1/16W 22K J
R207	VE-30012708	RESISTOR	1/16W 68K J
R208	VE-30012641	RESISTOR	1/16W 10K J
R211	VE-30012510	RESISTOR	1/16W 100R J
R213	VE-30012510	RESISTOR	1/16W 100R J
R216	VE-30000464	RESISTOR	1/10W 100R J
R217	VE-30000464	RESISTOR	1/10W 100R J
R224	VE-30012641	RESISTOR	1/16W 10K J
R225	VE-30012692	RESISTOR	1/16W 4.7K J
R226	VE-30012692	RESISTOR	1/16W 4.7K J
R227	VE-30012510	RESISTOR	1/16W 100R J
R228	VE-30012510	RESISTOR	1/16W 100R J
R229	VE-30012510	RESISTOR	1/16W 100R J
R230	VE-30012674	RESISTOR	1/16W 27K J
R231	VE-30012982	RESISTOR	1/16W 10R J
R232	VE-30012696	RESISTOR	1/16W 47K J
R233	VE-30012641	RESISTOR	1/16W 10K J
R234	VE-30000706	RESISTOR	1/4W 47R J
R235	VE-30012677	RESISTOR	1/16W 3.3K J
R236	VE-30012510	RESISTOR	1/16W 100R J

⚠Ref No.	Part No.	Part Name	Description Local
R237	VE-30012510	RESISTOR	1/16W 100R J
R238	VE-30012510	RESISTOR	1/16W 100R J
R239	VE-30012677	RESISTOR	1/16W 3.3K J
R244	VE-30012692	RESISTOR	1/16W 4.7K J
R245	VE-30012677	RESISTOR	1/16W 3.3K J
R246	VE-30012677	RESISTOR	1/16W 3.3K J
R250	VE-30012510	RESISTOR	1/16W 100R J
R251	VE-30012510	RESISTOR	1/16W 100R J
R254	VE-30012510	RESISTOR	1/16W 100R J
R255	VE-30012684	RESISTOR	1/16W 330R J
R256	VE-30012688	RESISTOR	1/16W 390R J
R257	VE-30012510	RESISTOR	1/16W 100R J
R258	VE-30012692	RESISTOR	1/16W 4.7K J
R259	VE-30012641	RESISTOR	1/16W 10K J
R260	VE-30012510	RESISTOR	1/16W 100R J
R261	VE-30012510	RESISTOR	1/16W 100R J
R262	VE-30012684	RESISTOR	1/16W 330R J
R263	VE-30012684	RESISTOR	1/16W 330R J
R264	VE-30012657	RESISTOR	1/16W 1K J
R265	VE-30012657	RESISTOR	1/16W 1K J
R266	VE-30012509	RESISTOR	1/16W 100K J
R267	VE-30012689	RESISTOR	1/16W 39K J
R268	VE-30012507	RESISTOR	1/16W 1.5M J
R269	VE-30012692	RESISTOR	1/16W 4.7K J
R270	VE-30012657	RESISTOR	1/16W 1K J
R271	VE-30012644	RESISTOR	1/16W 12K J
R272	VE-30015578	RESISTOR	1/16W 2.2R J
R273	VE-30012696	RESISTOR	1/16W 47K J
R274	VE-30015578	RESISTOR	1/16W 2.2R J
R275	VE-30012644	RESISTOR	1/16W 12K J
R276	VE-30012641	RESISTOR	1/16W 10K J
R277	VE-30012707	RESISTOR	1/16W 680R J
R278	VE-30012692	RESISTOR	1/16W 4.7K J
R279	VE-30012657	RESISTOR	1/16W 1K J
R280	VE-30012696	RESISTOR	1/16W 47K J
R281	VE-30012648	RESISTOR	1/16W 150K J
R282	VE-30012692	RESISTOR	1/16W 4.7K J
R283	VE-30012641	RESISTOR	1/16W 10K J
R284	VE-30012641	RESISTOR	1/16W 10K J
R285	VE-30015578	RESISTOR	1/16W 2.2R J
R286	VE-30012510	RESISTOR	1/16W 100R J
R287	VE-30012641	RESISTOR	1/16W 10K J
R288	VE-30015578	RESISTOR	1/16W 2.2R J
R289	VE-30012641	RESISTOR	1/16W 10K J
R290	VE-30012669	RESISTOR	1/16W 22K J
R291	VE-30012657	RESISTOR	1/16W 1K J
R292	VE-30012510	RESISTOR	1/16W 100R J
R293	VE-30012510	RESISTOR	1/16W 100R J
R294	VE-30012696	RESISTOR	1/16W 47K J
R310	VE-30012668	RESISTOR	1/16W 220R J
R311	VE-30012668	RESISTOR	1/16W 220R J
R400	VE-30000797	RESISTOR	1/10W 75R J
R401	VE-30000797	RESISTOR	1/10W 75R J
R402	VE-30000797	RESISTOR	1/10W 75R J
R403	VE-30012510	RESISTOR	1/16W 100R J
R404	VE-30012510	RESISTOR	1/16W 100R J
R405	VE-30012510	RESISTOR	1/16W 100R J
R406	VE-30000469	RESISTOR	1/10W 1K J
R407	VE-30000469	RESISTOR	1/10W 1K J
R413	VE-30000797	RESISTOR	1/10W 75R J
R414	VE-30012677	RESISTOR	1/16W 3.3K J
R415	VE-30012668	RESISTOR	1/16W 220R J
R416	VE-30000797	RESISTOR	1/10W 75R J
R417	VE-30012677	RESISTOR	1/16W 3.3K J
R418	VE-30012668	RESISTOR	1/16W 220R J
R419	VE-30000797	RESISTOR	1/10W 75R J
R422	VE-30000469	RESISTOR	1/10W 1K J
R423	VE-30012510	RESISTOR	1/16W 100R J
R424	VE-30012510	RESISTOR	1/16W 100R J
R425	VE-30012510	RESISTOR	1/16W 100R J
R429	VE-30000797	RESISTOR	1/10W 75R J
R430	VE-30000469	RESISTOR	1/10W 1K J
R431	VE-30000797	RESISTOR	1/10W 75R J
R432	VE-30000475	RESISTOR	1/10W 10K J
R433	VE-30012677	RESISTOR	1/16W 3.3K J
R434	VE-30000797	RESISTOR	1/10W 75R J
R435	VE-30000797	RESISTOR	1/10W 75R J
R436	VE-30012510	RESISTOR	1/16W 100R J
R437	VE-30012659	RESISTOR	1/16W 2.2K J
R438	VE-30012707	RESISTOR	1/16W 680R J
R439	VE-30012510	RESISTOR	1/16W 100R J
R440	VE-30012648	RESISTOR	1/16W 150K J
R441	VE-30012641	RESISTOR	1/16W 10K J
R442	VE-30012641	RESISTOR	1/16W 10K J
R443	VE-30000797	RESISTOR	1/10W 75R J
R444	VE-30000797	RESISTOR	1/10W 75R J
R445	VE-30012657	RESISTOR	1/16W 1K J
R446	VE-30012674	RESISTOR	1/16W 27K J
R447	VE-30012657	RESISTOR	1/16W 1K J
R448	VE-30012692	RESISTOR	1/16W 4.7K J

⚠Ref No.	Part No.	Part Name	Description	Local
R449	VE-30012641	RESISTOR	1/16W 10K J	
R450	VE-30012692	RESISTOR	1/16W 4.7K J	
R451	VE-30012641	RESISTOR	1/16W 10K J	
R452	VE-30012692	RESISTOR	1/16W 4.7K J	
R453	VE-30012641	RESISTOR	1/16W 10K J	
R454	VE-30012982	RESISTOR	1/16W 10R J	
R455	VE-30012510	RESISTOR	1/16W 100R J	
R459	VE-30012713	RESISTOR	1/16W 75R J	
R460	VE-30012713	RESISTOR	1/16W 75R J	
R461	VE-30012713	RESISTOR	1/16W 75R J	
R462	VE-30012705	RESISTOR	1/16W 6.8K J	
R463	VE-30012713	RESISTOR	1/16W 75R J	
R464	VE-30012713	RESISTOR	1/16W 75R J	
R465	VE-30012644	RESISTOR	1/16W 12K J	
R466	VE-30012644	RESISTOR	1/16W 12K J	
R467	VE-30012713	RESISTOR	1/16W 75R J	
R468	VE-30012705	RESISTOR	1/16W 6.8K J	
R469	VE-30012705	RESISTOR	1/16W 6.8K J	
R470	VE-30012685	RESISTOR	1/16W 33K J	
R471	VE-30012685	RESISTOR	1/16W 33K J	
R472	VE-30012713	RESISTOR	1/16W 75R J	
R473	VE-30012648	RESISTOR	1/16W 150K J	
R474	VE-30012689	RESISTOR	1/16W 39K J	
R475	VE-30012641	RESISTOR	1/16W 10K J	
R476	VE-30012641	RESISTOR	1/16W 10K J	
R477	VE-30012713	RESISTOR	1/16W 75R J	
R478	VE-30012689	RESISTOR	1/16W 39K J	
R479	VE-30012692	RESISTOR	1/16W 4.7K J	
R480	VE-30012696	RESISTOR	1/16W 47K J	
R481	VE-30012648	RESISTOR	1/16W 150K J	
R485	VE-30012641	RESISTOR	1/16W 10K J	
R487	VE-30000464	RESISTOR	1/10W 100R J	
R488	VE-30000464	RESISTOR	1/10W 100R J	
R489	VE-30000464	RESISTOR	1/10W 100R J	
R495	VE-30012668	RESISTOR	1/16W 220R J	
R496	VE-30012669	RESISTOR	1/16W 22K J	
R501	VE-30012510	RESISTOR	1/16W 100R J	
R502	VE-30012510	RESISTOR	1/16W 100R J	
R503	VE-30012641	RESISTOR	1/16W 10K J	
R505	VE-30012669	RESISTOR	1/16W 22K J	
R506	VE-30012669	RESISTOR	1/16W 22K J	
R507	VE-30012648	RESISTOR	1/16W 150K J	
R508	VE-30012641	RESISTOR	1/16W 10K J	
R509	VE-30012509	RESISTOR	1/16W 100K J	
R510	VE-30012705	RESISTOR	1/16W 6.8K J	
R511	VE-30012641	RESISTOR	1/16W 10K J	
R512	VE-30012669	RESISTOR	1/16W 22K J	
R513	VE-30012641	RESISTOR	1/16W 10K J	
R514	VE-30012692	RESISTOR	1/16W 4.7K J	
R550	VE-30012685	RESISTOR	1/16W 33K J	
R551	VE-30012685	RESISTOR	1/16W 33K J	
R700	VE-30014022	RESISTOR	1/16W 47R J	
L100	VE-30001971	FERRITE		
L101	VE-30001971	FERRITE		
L102	VE-30001971	FERRITE		
L103	VE-30001971	FERRITE		
L104	VE-30001971	FERRITE		
L177	VE-30006712	FERRITE BEAD		
L184	VE-30032610	FIXED COIL		
L201	VE-30001971	FERRITE		
L203	VE-30001971	FERRITE		
L204	VE-30002002	FIXED COIL	47uH K	
L206	VE-30001971	FERRITE		
L207	VE-30002002	FIXED COIL	47uH K	
L208	VE-30001971	FERRITE		
L209	VE-30001971	FERRITE		
L210	VE-30001971	FERRITE		
L211	VE-30001971	FERRITE		
L212	VE-30001971	FERRITE		
L213	VE-30001971	FERRITE		
L214	VE-30001971	FERRITE		
L215	VE-30001971	FERRITE		
L216	VE-30001971	FERRITE		
L217	VE-30001971	FERRITE		
L218	VE-30001971	FERRITE		
L219	VE-30000735	RESISTOR	1/10W 4.7R J	
L220	VE-30001971	FERRITE		
L221	VE-30029701	FIXED COIL		
L411	VE-30001971	FERRITE		
L412	VE-30001971	FERRITE		
L413	VE-30001971	FERRITE		
L414	VE-30001971	FERRITE		
L415	VE-30001971	FERRITE		
L422	VE-30016162	FERRITE		
L423	VE-30016162	FERRITE		
L424	VE-30001971	FERRITE		
L500	VE-30020531	FERRITE		
L502	VE-30020531	FERRITE		
L503	VE-30020531	FERRITE		
L504	VE-30020531	FERRITE		
L505	VE-30006712	FERRITE BEAD		
L506	VE-30019475	FIXED COIL	47uH	
L507	VE-30020531	FERRITE		
L508	VE-30020531	FERRITE		
L509	VE-30011450	FIXED COIL	22uH	
L512	VE-30020531	FERRITE		
⚠F501	VE-30035282	FUSE	5A/32VDC	
JK406	VE-30032641	JACK	PC AUDIO IN	
JK500	VE-30027932	SOCKET	DC IN	
PL400	VE-30033117	D SOCKET	PC INPUT	
PL401	VE-30018089	SCART SOCET	EXT-1	
S416	VE-30012657	RESISTOR	1/16W 1K J	
S417	VE-30012657	RESISTOR	1/16W 1K J	
TU200	VE-30029452	TUNER		
X100	VE-30017946	CLYSTAL	14.318MHZ	
X201	VE-30001741	CLYSTAL	24.576MHz	
Z200	VE-30012545	SAW FILTER		
Z201	VE-30001692	SAW FILTER		

AV JACK P.W. BOARD ASS'Y (VE-20239086)

⚠Ref No.	Part No.	Part Name	Description	Local
D100	VE-30001343	DIODE		
D101	VE-30001343	DIODE		
D102	VE-30001343	DIODE		
D103	VE-30001343	DIODE		
D104	VE-30001343	DIODE		
D105	VE-30001350	DIODE		
D106	VE-30001350	DIODE		
C100	VE-30000239	C CAPACITOR	33pF 50V J SL	
C101	VE-30000239	C CAPACITOR	33pF 50V J SL	
C102	VE-30000239	C CAPACITOR	33pF 50V J SL	
C103	VE-30000191	C CAPACITOR	100pF 50V J	
C104	VE-30000191	C CAPACITOR	100pF 50V J	
C105	VE-30000191	C CAPACITOR	100pF 50V J	
C106	VE-30000330	C CAPACITOR	4.7nF 50V K	
C107	VE-30000330	C CAPACITOR	4.7nF 50V K	
R100	VE-30000712	RESISTOR	1/4W 470R J	
R101	VE-30000712	RESISTOR	1/4W 470R J	
R102	VE-30000650	RESISTOR	1/4W 33R J	
R103	VE-30000650	RESISTOR	1/4W 33R J	
R107	VE-30000580	RESISTOR	1/4W 22R J	
R108	VE-30000580	RESISTOR	1/4W 22R J	
L100	VE-30006712	FERRITE BEAD		
L101	VE-30006712	FERRITE BEAD		
L102	VE-30006712	FERRITE BEAD		
L103	VE-30006712	FERRITE BEAD		
L104	VE-30006712	FERRITE BEAD		
L105	VE-30006712	FERRITE BEAD		
L106	VE-30006712	FERRITE BEAD		
L107	VE-30006712	FERRITE BEAD		
L108	VE-30006712	FERRITE BEAD		
L109	VE-30006712	FERRITE BEAD		
L110	VE-30006712	FERRITE BEAD		
L111	VE-30006712	FERRITE BEAD		
L112	VE-30006712	FERRITE BEAD		
L113	VE-30006712	FERRITE BEAD		
L114	VE-30006712	FERRITE BEAD		
JK100	VE-30015112	JACK	S-VIDEO IN	
JK101	VE-30015338	JACK	VIDEO IN	
JK102	VE-30015337	JACK	AUDIO R IN	
JK103	VE-30015339	JACK	AUDIO L IN	
JK104	VE-30020016	JACK	HEADPHONE	

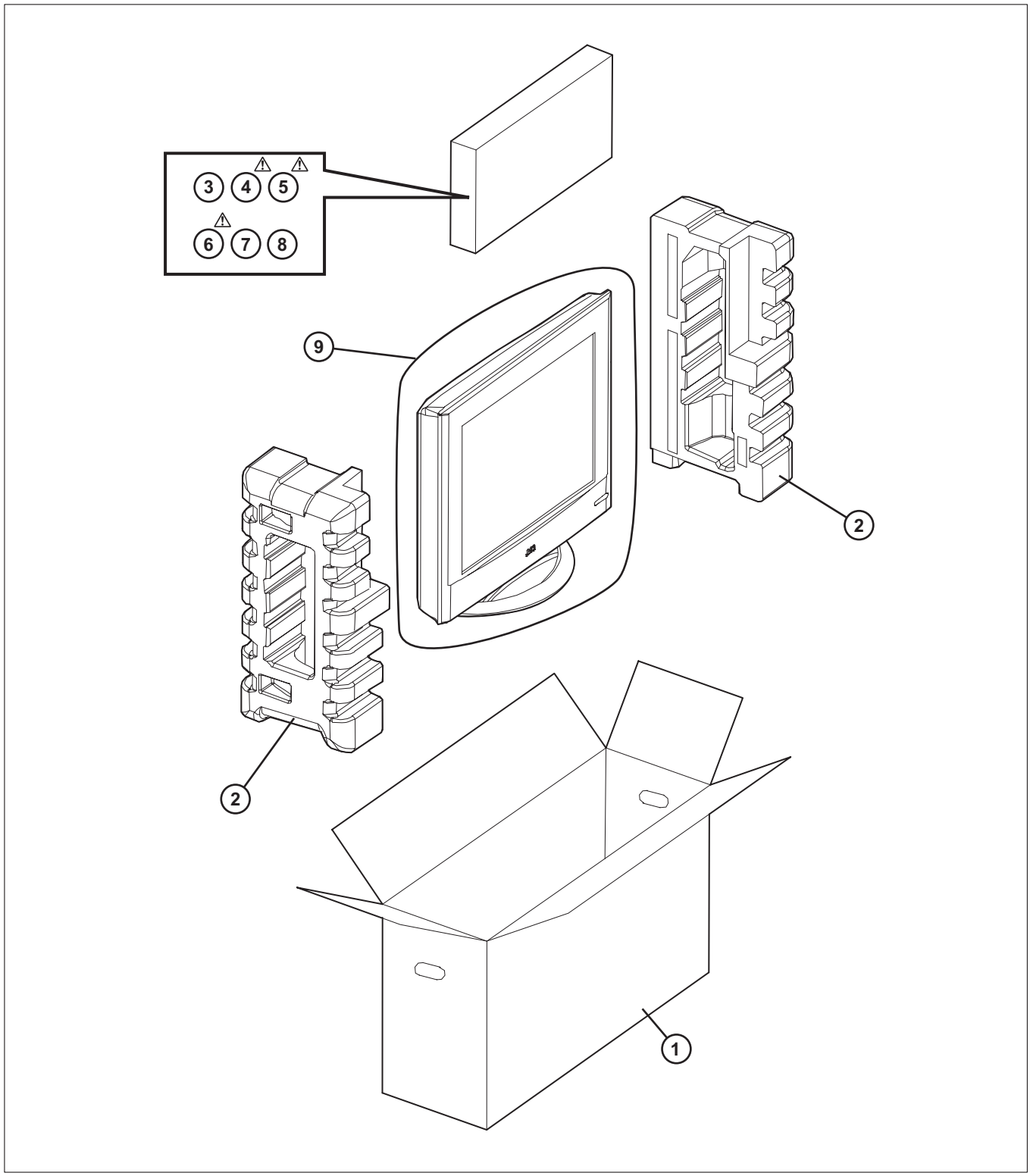
SIDE CONTROL P.W. BOARD ASS'Y (VE-20235650)

⚠Ref No.	Part No.	Part Name	Description	Local
SW1	VE-30032684	TACT SWITCH	VOLUME +	
SW2	VE-30032684	TACT SWITCH	VOLUME -	
SW3	VE-30032684	TACT SWITCH	PROGRAM +	
SW4	VE-30032684	TACT SWITCH	PROGRAM -	
SW5	VE-30032684	TACT SWITCH	MENU	
SW6	VE-30032684	TACT SWITCH	TV/AV/OK	
SW7	VE-30032684	TACT SWITCH	STAND-BY	

LED P.W. BOARD ASS'Y (VE-20247127)

⚠Ref No.	Part No.	Part Name	Description Local
IC1	VE-30031033	PREAMPLIFIER	
D2	VE-30040560	LED	RED/GREEN
C1	VE-30000371	E CAPACITOR	22uF 50V M
R1	VE-30000459	RESISTOR	1/4W 100R J

PACKING



PACKING PARTS LIST

⚠	Ref.No.	Part No.	Part Name	Description	Local
	1	VE-50084611	CARTON BOX		LT-20J50SJ
	1	VE-50083541	CARTON BOX		LT-20J50SU
	2	VE-20235217	CUSHION ASSEMBLY	2pcs in 1set	
	3	VE-30039453	REMOTE CONTROL UNIT	RM-C1861	
⚠	4	VE-50084612	INST BOOK	(ENGLISH)	LT-20J50SJ
⚠	4	VE-50083724	INST BOOK	(ENGLISH/GERMANY/FRENCH/ITALIAN/SPANISH	LT-20J50SU
⚠	5	VE-30002375	POWER CORD	For AC ADAPTOR	LT-20J50SJ
⚠	5	VE-30002376	POWER CORD	For AC ADAPTOR	LT-20J50SU
⚠	6	VE-30041644	AC ADAPTOR	DC 12V	
	7	----------	BATTERY	AA/R6 type(x2)	
	8	----------	WARRANTY CARD	VE-50084613	LT-20J50SJ
	8	----------	WARRANTY CARD	VE-50083725	LT-20J50SU
	9	VE-50000007	POLY BAG		

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